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ANTE-MORTEM CONJECTURES AND POST-MORTEM FINDINGS.

THAT ancient humorism of the physician who was asked what ailed his patient and rather absently replied, "We don't know yet, but we expect to find out at the autopsy," is rather forcibly recalled by an instructive paper read by Dr. Richard C. Cabot at the last meeting of the American Medical Association, on "Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies."*

In his paper Dr. Cabot not only gives the ratio of diagnostic hits to misses, as determined by the three thousand subsequent autopsies, but discourses upon the causes of failure in a manner that should be highly interesting to the medical practitioner, but would probably be as unedifying to the average pharmacist reader of this journal as it is to the editor.

While Dr. Cabot frankly admits that in numerous instances the mistake in diagnosis was due to overlooking visible evidences of the disease, and therefore justly chargeable to incompetence or carelessness on the part of the physician, yet it seems clear that in the majority of cases the failures can be attributed only to imperfection of method—which is only another name for imperfection of diagnostic science—and not to lack of capacity or care on the part of the diagnostician.

He says: "As one looks at the accompanying chart of diagnoses one naturally asks: Whose success or failure does this represent? Where Smith and Jones have failed, could you and I have done better? I doubt it. The study of the details in these cases before and after death convinces me that, for the present and under the present limitations of diagnostic method, few of the mistakes tabu-

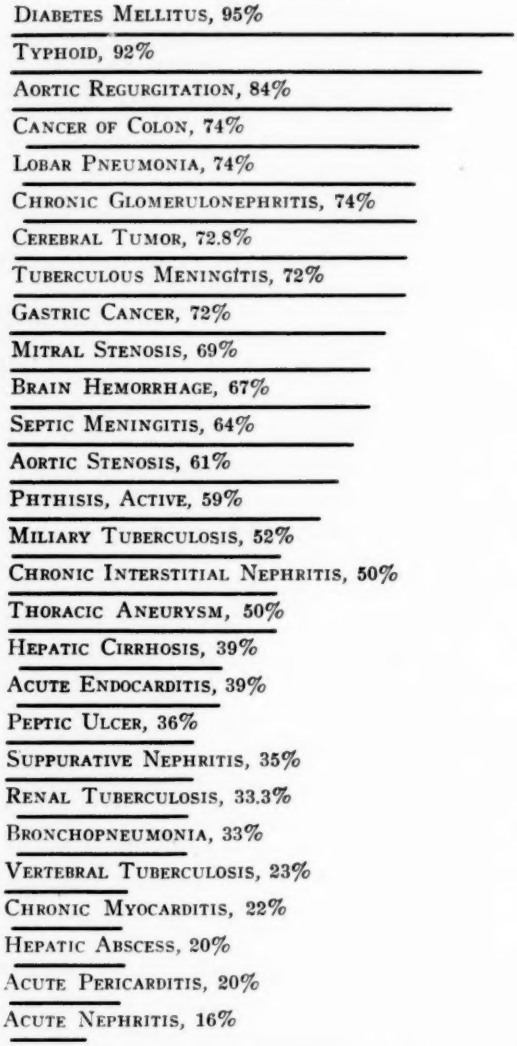
*Journ. A. M. A., December 28, 1912, 2295.

lated above could have been avoided. The table represents the success-and-failure ratio of certain methods rather than of certain men. Admitting that the man behind the gun (or the method) makes a vast difference, I do not believe that these figures depend to any considerable degree on the possession or lack of special virtuosity in diagnosis. They mirror the methods of an average up-to-date American hospital."

The chart of diagnoses referred to is as follows:

PERCENTAGES OF DIAGNOSTIC SUCCESS.

TABLE SHOWING GRAPHICALLY THE PERCENTAGE OF CORRECT DIAGNOSES IN VARIOUS DISEASES.



For obvious reasons, the diagnoses of diabetes mellitus and typhoid are nearly always correct, but from this point onward the percentage of successful guesses slumps rapidly, until only one guess in two is correct in interstitial nephritis and

thoracic aneurysm, while in acute nephritis only a pitiful sixteen in a hundred cases were correctly identified before death.

Truly there seems to be an atom of truth in the witty definition of a physician as one who puts drugs about which he knows little into bodies about which he knows still less.

In addition to the cases tabulated, the author gives some further very interesting information, as for example:

In Pott's disease only four out of seventeen cases were recognized in life; of eighty cases of cirrhosis of the liver, forty-nine were not recognized; in hepatic abscess, eighty percent of the diagnoses were mistaken; in cancer of the colon over twenty-five percent of the cases were not recognized, and in cancer of the esophagus twenty-five percent of the diagnoses were failures. In thirty-nine cases of diabetes the autopsies showed "nine cases of active tuberculosis, and not one of them was recognized in life. In one other case, tuberculosis was diagnosed, but pneumonia (not tuberculosis) was found."

Concerning acute uremia he says: "I have never found a correct diagnosis of acute uremia, yet the diagnosis is a frequent one," from which we infer that of the asserted cases none has been found to be true to label when the final analysis (i. e., autopsy) was made.

It would be vastly comforting if the facts would permit us to go on and show how much better the pharmacist succeeds in his special line of compounding and dispensing, but a mental review of his shortcomings in other directions suggests that it would be well not to invite invidious comparisons.

J. H. BEAL.

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PROPOSED FEDERAL ANTINARCOTIC LEGISLATION.

THE average citizen is rarely inclined—small wonder perhaps—to study carefully and analytically the language, (or verbiage?) of proposed legislative enactments, especially when they relate to complex and technical subjects like pharmacy and medicine. Usually he is content to take his opinions at second hand, and approves or disapproves such measures accordingly as they are praised or condemned by his favorite newspaper or professional journal.

Possibly it is this general indifference to laws in the process of making that explains why so many acts apparently adopted in obedience to popular demand are so unpopular after they have been placed upon the statute books, and it is possibly for the same reason also that courts and executives are so frequently assailed when laws do not work out in the way their sponsors thought they would.

Probably no legislation since the Food and Drugs Act of 1906 has such importance for all branches of the drug trade, or is so deserving of dispassionate study and critical analysis as the so-called Harrison Bill, now in Congress, relating to the traffic in opium and cocoa leaves, their derivatives and preparations.

This bill has been before Congress in several forms, but is now known as H. R. 28277, though it is possible that it may have some other form and title by the time this reaches the reader.

In form the bill is a revenue measure, though admittedly its real purpose is to

give a certain degree of Federal control over the traffic in the above named drugs within the limits of the several states, and is not expected to produce more revenue than will fairly cover the cost of its administration.

The purpose of making it a revenue measure is, of course, clear, viz., to make it applicable within state limits, since without the revenue feature it could operate only in interstate commerce, and could not regulate traffic in the articles after they had crossed state lines and their original packages had been broken up.

The bill does not propose to control or regulate the distribution of these habit-forming drugs to the actual consumers, this function belonging exclusively to the province of the states themselves.

It follows, therefore, that the deterrent effect of the law will arise out of the fact that it will confine the distribution of these drugs within well defined, and presumably legitimate, commercial channels, and that it provides a method for tracing them in all of their forms from the time they reach the ports of entry until they reach the hand of the last distributor, the retailer. As a consequence the retailer will no longer be able to obtain these drugs surreptitiously. His registration with the Internal Revenue Collector as a licensed dealer, his order on file with the jobber or manufacturer, and the reports which he must make will furnish indisputable evidence of the quantity of these drugs which pass through his hands.

Here the operation of the Federal law very properly ceases; the state law must provide for and control the distribution to the ultimate consumer.

The main provisions of the bill are in brief as follows:

(1) It applies to opium and cocoa leaves, their salts, (i. e., salts of their alkaloids) derivatives and preparations.

(2) Those who manufacture or deal in these drugs are defined, and are classified as importers, exporters, wholesale manufacturers or manufacturing pharmacists, wholesale dealers, and retail dealers.

(3) Each member of the above classes must register annually with the Collector of Internal Revenue in his district, and pay an annual tax, which is set at $1.00 for the retailer and $25.00 for each of the other classes.

(4) None of these, except the retailer, may dispense any of the drugs named except to other dealers registered with the Collector of Internal Revenue.

(5) It levies a tax of five cents per pound on opium, and one quarter of a cent per pound on cocoa leaves, to be paid by affixing and cancelling stamps of appropriate denominations, under such rules and regulations as the Commissioner of Internal Revenue may prescribe.

(6) It provides for the use of duplicate order blanks obtained from the Collector of Internal Revenue, upon which all orders for the named drugs must be made out, and no dealer may sell or ship on any order not written on such blanks, except sales by the retailer direct to the consumer.

(7) One of these duplicates is to be retained by the purchasing dealer and the other by the seller for a period of two years, thus automatically furnishing a

complete record of every transaction, and such records shall be open to inspection by the duly authorized Federal or State authorities.

(8) Each of the registered dealers is required to keep such books and render such returns of his purchase of such drugs as the Commissioner of Internal Revenue shall from time to time determine.

(9) Every applicant for registration under the act must file with his application a sworn report of the quantity of the named drugs and their preparations on hand at the time of his application, and to the containers of these must be affixed and cancelled the appropriate amount in stamps.

(10) The provisions of the act do not apply to the manufacture, sale, etc., of preparations that do not contain more than two grains of opium, ¼ grain of morphine, ⅓ grain of heroin, or 1 grain of codeine, or their salts or derivatives, in one fluid or avoirdupois ounce, nor to liniments, ointments or other preparations for external use only, provided they are not dispensed for the purpose of evading the provisions of the act.

(11) The provisions of the section relating to interstate commerce do not apply to the delivery of prescriptions of duly registered physicians, dentists, and veterinarians, when compounded by persons registered under the act.

(12) Possession of the named drugs, their preparations, etc., shall be deemed as sufficient evidence of violation of the act unless the defendant shall explain such possession to the satisfaction of the jury.

(13) Collectors of Internal Revenue are required to furnish to state or municipal officers, on request, lists of the registered dealers in their respective districts, and certified copies of the records in their offices, upon payment of a fee of $1.00 for each 100 names or 100 words.

(14) The penalty provided for violation of any of the provisions of the act is a fine of not more than $2000.00 or imprisonment for not more than five years, or both, at the discretion of the court.

(15) Existing revenue laws, and the provisions of the Food and Drugs Act, and of the act prohibiting the importation and use of opium for other than medicinal purposes, so far as applicable, are to apply to the provisions and enforcement of this act.

The foregoing are the main provisions affecting the rights and liabilities of manufacturers and dealers, the remaining portions relating principally to the machinery and detail of administration.

All portions of the drug trade, or at least all portions entitled to considera tion, are agreed that some Federal legislation is necessary to aid in controlling the traffic in habit-forming drugs, and the objections they have offered to the several Harrison Bills were addressed to details rather than to their substance, i. e., to the methods proposed for carrying the substantive provisions of the law into effect. Some of these provisions were so complex and burdensome that they would have compelled druggists to abandon the sale of preparations containing opium and cocoa or their derivatives in even the smallest amount—preparations which from their nature could not be used either to create a habit or to satisfy it where it already existed.

The principal modifications of the Harrison Bill secured by the National Drug Trade Conference held in Washington, Jan. 15-17, the proceedings of which are printed elsewhere in this issue, are as follows:

Reducing the wholesale license fee from $100.00 to $25.00, and the retail license fee from $5.00 to $1.00.

Modifying the definition of wholesalers so that the retail pharmacist can make the ordinary galenical preparations of opium, such as laudanum and paregoric, without being required to take out a wholesaler's license.

Changing the phraseology in certain particulars so as not to interfere with the supplying of the drugs to physicians, dentists and veterinarians for legitimate use, and so as not to interfere with the reasonable liberty of these in their administration of such drugs.

Substituting the use of an official order blank furnished by the Collector of Internal Revenue for the burdensome requirement of stamping all derivatives or preparations of opium and cocoa, and for the elaborate records and returns which the original bill required. No dealer can obtain supplies of the named drugs, except when the orders are written upon these official order blanks, while the preservation of their respective copies by the purchaser and seller for the period of two years, furnishes a complete record of the drugs until they reach the hands of the retailer.

It is difficult to imagine a simpler method of tracing the drugs, or one which would impose a lighter burden upon those who handle them legitimately, the only extra labor imposed upon the purchasing dealer being that he must make out two copies of his order instead of one, and that one of these copies must be retained on file for a period of two years.

It must not be imagined that any form of law can be devised that will be entirely free from objections, or that will not impose some burdens upon the pharmacist and physician, no matter how conscientious they may be in the handling of these drugs.

Since society began those who have been willing to deal justly with their fellow men have been compelled to bear the burden of laws intended to curb the actions of those who are not controlled by conscientious motives, and no one has yet been able to suggest a method that will relieve the honest and conscientious citizen from this hardship.

J. H. BEAL.

Book Reviews

PHARMACOLOGY AND THERAPEUTICS FOR STUDENTS AND PRACTITIONERS OF MEDICINE. By Horatio C. Wood, Jr., M. D., Professor of Pharmacology and Therapeutics in the Medico-Chirurgical College; Physician to the Medico-Chirurgical Hospital, Second Vice-Chairman of the Committee of Revision of the U. S. Pharmacopœia. Philadelphia and London, J. B. Lippincott Company; 8 vo., pp. 429.

The purpose held in view by the author of this excellent work can be best expressed by quoting the opening paragraphs of his preface:

"The last two decades have witnessed extraordinary advances in all branches of medical science, but in none of them more striking than in pharmacology. Twenty years ago this department of medical knowledge was a jumble of isolated facts; today it is an orderly science. Our knowledge of the changes produced by drugs in the bodily function has been enormously increased, but more important than this expansion in our information as to what drugs do, is the fact that we are beginning to understand how they do it, and thereby to become able to correlate the facts of drug action. The present conception of pharmacology is utterly different from that of a generation ago.

"Owing partly to this epochal advancement in the science of pharmacology, and in part to the new ideas of teaching which have been introduced into the whole medical curriculum, there has been in the last ten years a revolution in the methods of teaching pharmacology. The old style of text-book of materia medica and therapeutics is so fundamentally at variance with modern ideas that it is almost impossible to make it conform to the needs of the present-day student. The author has had this conviction brought home with more and more force by each succeeding class of students for several years, and it is the feeling that there was need of a book which should present the concept of today in a form sufficiently concise and comprehensive to be available for the ordinary student which has led to the preparation of this work."

It is gratifying also to read further, that: "The author feels equally strongly that pharmacology is of no value to the medical student save as a basis for practical therapeutics, and the more clearly the student can be made to perceive the relation between pharmacological science and the clinical employment of drugs for the relief of human suffering, just so much more value will his pharmacology become to him, and the more successful will be his future therapeutics. There is sometimes a tendency today to condemn the so-called practical branches of the medical course, and to unduly exalt the scientific branches, just as a few years ago there was a very evident tendency in the opposition direction. The author believes that for the sake of impressing the student with the importance of a knowledge of the fundamental science, as well as to assist him in the associating of its facts, it is advisable that both scientific facts and their clinical application should each receive its due amount of attention in a book on therapeutics, and

he has endeavored to subordinate neither the science nor its application in this present work, but to emphasize their mutual interdependence."

Perfect success in the carrying out of these ideas is not to be expected of any individual, but within the limits assigned by the 400 odd pages, and the necessity of adapting the work to the comprehension of students, the author has produced a creditable and useful volume.

A preliminary study of pharmaceutical data, of prescription-writing and of the mode of action of drugs makes up the first chapter. The succeeding chapters are devoted to different classes of medicaments, as follows:

Chapter II. Drugs used to affect secretion: Diuretics; Diaphoretics; Expectorants; Drugs which diminish secretion.

Chapter III. Drugs used to affect the nervous system: Somnifacients: Anesthetics; Analgesics; Spinal depressants; Motor nerve paralyzants; Sensory nerve paralyzants.

Chapter IV. Drugs used to affect circulation: Cardiac stimulants; Vasomotor stimulants; Drugs which reduce blood pressure; Treatment of chronic heart disease.

Chapter V. Drugs used to affect the alimentary tract: Stomachics; Emetics; Cathartics.

Chapter VI. Drugs affecting metabolic processes.

Chapter VII. Drugs acting on causes of disease: Anthelmintics; Antimalarials; Disinfectants.

Chapter VIII. Extraneous remedies: Digestants: Alkalies, Demulcents, Emollients, Counter-irritants, Escharotics.

Chapter IX. Drugs of minor importance.

There is a fair index.

The text is not only meaty, but also well flavored, the author's style being lucid and concise.

There are a number of illustrations elucidating various points in the action or application of remedies, but the book is not over-loaded with tracings or elaborate diagrams. In fact, the most striking feature of the author's work is temperate restraint in the matter of laboratory detail. There is sufficient to give the student a good idea of what the laboratory can do, and of the facts which have actually been established concerning the various medicaments discussed, but he is not confused either with elaborate protocols of individual experiments, or with numerous reports of conflicting observations.

A good feature of the book, and one which is to be highly commended, is the recognition of the great part played by the autonomic nervous system in physiology, in pathology and in therapeutics. It is also refreshing to find allusions to (and sometimes studies of) a number of drugs which are either not official or not frequently referred to in recognized medical literature; for example, Apocynum, Convallaria and Adonidin, which the author classes as cardiac stimulants; the Peroxide salts and Methylthionine among disinfectants and antimalarials; Theophyllin among diuretics; Grindelia among expectorants; etc.

On the other hand, we are sorry to miss studies on Quebracho and its alkaloids, which Wood is peculiarly well qualified to treat of, since he himself has

done a valuable piece of experimental work upon these agents, and is not unfamiliar with their clinical uses. We are also sorry to find nothing about Cactus, which is important enough to demand consideration from both the clinical and the laboratory sides, and concerning which much pharmacologic nonsense on the one hand and clinical extravagance on the other, have been published. An authority like Wood, who understands and can correlate experimental and clinical work, could do much to settle the vexed questions concerning this medicament. It may be, however, that these omissions, which can only be deliberate, were imposed upon the author by his plan already alluded to, to omit that which would disturb the student without corresponding advantage. We can hope, however, that in some future study, whether text-book or otherwise, he will give practicing physicians the advantage of this knowledge concerning these two very important drugs.

There is a brief but judicious article upon Salvarsan; and other non-official but well attested synthetic compounds, such as heroin, dionin, etc., also obtain recognition.

Concerning the classification adopted by the author, which follows in a measure that of his illustrious father, it is to be said that it is understandable and practicable, and is much to be preferred to the no-classification plan. It is not perfect, but a perfect classification is indeed impossible. The reviewer's classification differs from that of the author, but this is not the place to discuss the relative values of two different approximations to an ideal impossible of realization. All that can be demanded of any arrangement of drugs is that it shall be helpful to the student in acquiring knowledge, and to the physician in applying the knowledge acquired, and this is to be acknowledged of Wood's.

What we miss most of all in this book—and again the omissions must be deliberate and self-imposed—are definite therapeutic advice and differentiation. We do not mean to imply any obscurity or ambiguity, but rather a lack of specificity. The author has been somewhat general in his discussion of the uses of drugs, and rarely goes into detail. Nevertheless his recommendations are sound, and sufficient to give the student a comprehensive idea of the lines along which the different drugs may usefully and intelligently be applied.

On the whole, the book is to be heartily commended as a sincere and faithful presentation of the present status of pharmacology and therapeutics and their interrelations, and as laying a broad and firm foundation of therapeutic knowledge upon which the student can build according to his ability. We look forward to considerable popularity for the work, and to a demand for many subsequent editions. S. S. C.

DUNN'S PURE FOOD AND DRUG LEGAL MANUAL. By Charles Wesley Dunn, A. M. of the New York Bar. Dunn's Pure Food and Drug Legal Manual and Corporation, 32 Liberty street, New York, N. Y., 2 Volumes Buckram. Price $12.00 net.

The first of the above named volumes, embracing 2347 pages, is now at hand. The second volume is in course of preparation and will bring the number of pages to over four thousand in all.

Prior to the appearance of this work, complete and authentic knowledge of the Federal and State Statutes, department rules and regulations, and court decisions has been available only in the form of pamphlets or in more or less complete compilations issued by the various authorities charged with the enforcement of the laws, or published by various associations, as the National Wholesale Druggists and the Proprietary Associations. All of these compilations, while valuable, were necessarily restricted in scope and completeness by the fact that they were intended mainly for free distribution.

Dunn's Pure Food and Drug Legal Manual is in the nature of an extended treatise upon the whole subject of food and drugs law, including Federal, state, territorial, and special, food, drug, paint, oil and turpentine laws, rules and regulations; food standards, food inspection decisions, and the leading court decisions, all classified in form for ready reference.

An idea of the character and extent of the work may be gathered from the synopsis of part one, the subject matter of which is classified under the following main divisions: Scope of the law, administration and enforcement, guaranty, original package, food and drugs affected by the law, adulteration of food, misbranding or mislabeling of foods, adulteration of drugs, misbranding or mislabeling of drugs, export of food and drugs, and import of food and drugs.

This portion of the work takes up 1834 pages of Volume 1, the law of each state being analyzed and interpreted in accordance with official rules and judicial determinations.

The work is encyclopedic in character, and is designed to present the entire law of the United States, both state and national, as applied to the adulteration, sophistication and misbranding of food and drugs. It will doubtless be accepted as the leading authority upon the subject by courts and attorneys, as well as by manufacturers and dealers in the products concerned.

J. H. BEAL.

DIGEST OF LAWS AND REGULATIONS IN FORCE IN THE UNITED STATES RELATING TO THE USE, SALE, AND MANUFACTURE OF POISONS AND HABIT-FORMING DRUGS. By Martin I. Wilbert and Murray Galt Motter. Public Health Bulletin No. 56. Government Printing Office, Washington, November, 1912. Paper—Pages 278+V. 25 cents.

This useful compilation presents in condensed form the portions of the Federal, State, and Territorial statutes relating to the sale and use of poisons, including intoxicating liquors, cocaine, and habit-forming drugs, and the statutory standards for drugs, classified under the names of the respective states, and Alaska, the Canal Zone, Hawaii, and the Philippine Islands.

Most of the statutory provisions are quoted verbatim, though in some instances their principal provisions are given in abstract. The volume contains an interesting introductory chapter relating to the general subject, and extended tables showing, in abstract, the requirements of the various laws regulating the sale of poisons and narcotics, cocaine and narcotics, the requirements relating to poisons and narcotics embodied in the food and drugs laws, and of the various laws designed to restrict occupational poisoning. These tables cover 31 pages

of the book, and are constructed so as to show readily the principal requirements of the laws to which they relate.

The volume also contains a list of the authorities consulted, a full and well arranged index, and a list of the Public Health Bulletins issued by the Public Health Service to date. Its completeness, excellent arrangement, and the evident care with which the abstracting has been done, are highly creditable to its authors and to the Public Health Service.

Copies can be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C.

J. H. BEAL.

HOW TO DEAL WITH PHARMACEUTICAL CROOKS.

There always have been and probably always will be rascals and crooks in every trade, calling, or profession. To detect and punish and expel them is not easy. Among the very men who are employed to aid in the work of detecting and punishing and expelling are rascals and crooks. But flagrant cases of depravity, lawlessness, unprofessional conduct and other forms of remissness on the part of members of the pharmaceutical profession should and can be, and sometimes are, punished in a more effectual way than that specifically provided by law in such cases. The payment of a fine for selling sub-standard goods may amount in effect merely to the payment of a license fee for permission to break the law. It may seem profitable to the man lacking in moral sense, to save a hundred dollars on materials and be fined only fifty dollars for supplying goods not of the proper quality or strength. Doubtless there are men masquerading as pharmacists who would not hesitate to make fifty dollars in this way. The thing for the other kind of pharmacists to do is not only to cooperate with the forces of law and order to make the fines larger than the profits of law-breaking, but to show the public that retail dealers in drugs who jeopardize health and life by making it a business to sell drugs of inferior quality have no standing in representative drug circles. They have done this to a certain extent. The greater this extent is made, the fewer complaints of dishonesty will be lodged against the profession of pharmacy as a whole, and when complaints are lodged, the better will be the position of those members of that profession who are not guilty of the shortcomings charged. A prominent Brooklyn druggist expressed the correct idea in discussing a recent wholesale accusation of substitution on the part of druggists, when he said that the members of the profession who do a legitimate business are desirous of seeing the substitution evil wiped out and, in their efforts to abolish it, would welcome the cooperation of the man making the charges.

Often when the hue and cry about druggists has subsided and the charges have been sifted, it is found that members of the pharmaceutical profession are not the law-breakers, but rather that they are the innocent victim of law-breakers who make no pretense of being pharmacists.—*The Druggist's Circular.*

Section on Scientific Papers

Papers Presented at the Sixtieth Annual Convention

TENTATIVE STANDARDS FOR SOME BIOLOGICALLY STANDARDIZED DRUGS.

CHAS. C. HASKELL AND CHAS. R. ECKLER, INDIANAPOLIS, IND.

During the past four years we have had occasion to test by experiments upon lower animals a number of samples of drugs not suited for chemical assay. It seemed to us that an analysis of the results secured would possess a certain amount of interest and might shed some light on the unsettled question of biological assay. On the other hand, could it be assumed that the methods employed were reasonably accurate, inferences might be drawn as to provisional standards for some of these drugs. While no one will dispute the desirability of adjusting preparations of these drugs to definite standards, it must be admitted that two very important essentials have not yet been fulfilled to the satisfaction of everyone; namely, the selection of absolutely reliable assay methods and the clinical testing of preparations assayed by such methods. The methods we have employed have seemed to us the best, but it is quite possible that they are unsuitable, a point which can be settled only by careful investigation and cooperation among laboratory workers and between them and clinicians.

For the Digitalis series, we have used the one hour frog heart method of Cushny. Temperature is carefully noted and the end point is considered as reached when the frog's ventricle is motionless and tightly contracted in systole, sixty minutes after injection. The alcoholic strength of the solutions injected has varied between 5 and 33⅓ percent, a percentage as high as the latter not affecting the size of the dose necessary to stop the heart. The frogs have varied in weight from 10 to 40 grams, usually weighing near 20 grams. We have been unable to see any difference between male and female frogs in regard to resistance to poisoning by digitalis and its allies. At certain seasons, the frogs seem more susceptible to ouabain than at others while such is apparently not true of the susceptibility to digitalis. The values given below are the amounts in fractions of a gram per gram frog weight necessary to cause systolic stoppage of the frog's heart in 60 minutes.

First in the digitalis or heart tonic group comes convallaria. Three samples of convallaria root assayed at temperatures between 20° and 24° gave values of:

1. 0.000125
2. 0.000125
3. 0.000150

Two samples assayed at higher temperatures gave values of:

1. 0.0002 at 26°C
2. 0.00015 at 27°C

Three samples of F. E. Convallaria Root assayed at temperatures between 20° and 24° gave values of:

1. 0.0002
2. 0.000125
3. 0.000150

Average = 0.000158

Four samples of F. E. Convallaria Root assayed at higher temperatures gave values of:

1. 0.00015 at 25°
2. 0.0002 at 25°
3. 0.0001 at 27°
4. 0.0002 at 28°

Average = 0.000162

One sample of convallaria flowers assayed between 20° and 24° gave a value of 0.00005.

One sample of F. E. convallaria flowers assayed under similar conditions gave a value of 0.0001.

Twenty samples of digitalis leaf were assayed at temperatures between 20° and 24°. Of this number, two gave a value of 0.00035; three gave a value of 0.0004; six gave a value of 0.00045; two gave a value of 0.00050; four gave a value of 0.00055; one a value of 0.00060; one a value of 0.00065; and one a value of 0.00075.

Five samples of digitalis leaf were tested at higher temperatures with the following results:

1. 0.0004 at 25°
2. 0.00063 at 25°
3. 0.00045 at 25.5°
4. 0.00030 at 26°
5. 0.00045 at 27°

Nine Samples of F. E. digitalis were tested at temperatures between 20° and 24°. One sample gave a value of 0.00055; one, 0.00060; two, 0.00070; one, 0.00090; one, 0.00095; one, 0.0011; one, 0.0013; one, 0.0015. (Average 0.000922). Four samples of F. E. digitalis were tested at higher temperatures with results as follows:

1. 0.00085 at 26°
2. 0.00075 at 26.5°
3. 0.00070 at 29°
4. 0.00055 at 32.5°

Average = 0.000712

Eleven samples of tincture of digitalis were assayed at temperatures between 20° and 24°. One sample gave a value of 0.0050; three samples, 0.0060; five samples, 0.0065; one sample, 0.009; one sample, 0.010. (Average 0.0067.)

Three samples of tincture digitalis were tested at higher temperatures with the following results:

1. 0.005 at 26°
2. 0.0060 at 27°
3. 0.0055 at 29°

Average = 0.0055

Three samples of squill were assayed at temperatures between 20° and 24°. Of these three, two gave a value of 0.00045, one a value of 0.00050. Four samples of squill were assayed at higher temperatures, the results follow:

1. 0.0004 at 25°
2. 0.0005 at 26°
3. 0.0005 at 29°
4. 0.0005 at 29°

Twelve samples of F. E. squill, acetic, were assayed at temperatures between 20° and 24°. Of these, three gave a value of 0.0015; three a value of 0.00175; one a value of 0.002; one a value of 0.0022; two a value of 0.0025; two a value of 0.003.

Five samples of F. E. squill acetic tested at higher temperatures gave the following results:

1. 0.0035 at 25°
2. 0.0015 at 29°
3. 0.0040 at 30°
4. 0.0015 at 30.5°
5. 0.0035 at 31.5°

Three samples of strophanthus seed were tested at temperatures between 20° and 24°. Of these, one gave a value of 0.000006; one a value of 0.000015; one a value of 0.000010.

Five samples of strophanthus seed were tested at other temperatures, the results being:

1. 0.000006 at 18°
2. 0.000006 at 18.5°
3. 0.000005 at 25°
4. 0.000003 at 25°
5. 0.000003 at 33°

Twelve samples of tincture of strophanthus were tested at temperatures between 20° and 24°. Of these, one gave a value of 0.00004; three a value of 0.00045; one a value of 0.00052; one a value of 0.000055; two a value of 0.000060; one a value of 0.000080; one a value of 0.000085; one a value of 0.0001; and one a value of 0.00011.

Eight samples examined at higher temperatures gave values as follows:

1. 0.00017 at 24.5°
2. 0.000045 at 25°
3. 0.000050 at 25.5°
4. 0.000038 at 28°
5. 0.000045 at 29°
6. 0.000038 at 32°
7. 0.00004 at 28.5°
8. 0.00004 at 33°

All samples of crude drugs are examined by the botanist before being sent to our department, so that adulterated, mouldy, or otherwise unsatisfactory samples are not tested by us. It is immediately evident that a rather remarkable uniformity in strength exists in most of the samples of crude drugs that we have examined. Thus, of three samples of convallaria root assayed at the "optimum temperature," the variation in strength was only about 16 2/3 per-cent. Two samples examined at higher temperatures should, theoretically, have been capable of stopping the heart when given in smaller dose, but such was not the case.

Of twenty samples of digitalis leaf, secured, chiefly from German and English jobbers, examined at temperatures between 20° and 24°, fifteen did not vary much more than 30 percent while the greatest difference between the samples was 114 percent.

Of five samples of digitalis leaf tested at higher temperatures, four agreed fairly closely in strength, the largest dose being 50 percent greater than the

smallest. Here, also, temperature did not seem to play a very important role. The twenty samples assayed at the optimum temperature averaged 0.000490, while those assayed at higher temperatures averaged 0.000446.

Of the three samples of squill assayed between 20° and 24° two gave the same value while one required a dose 11.1 percent greater. Of the four samples assayed at higher temperatures, the strongest was sufficient in a dose 20 percent smaller than the remaining three. Here, three samples assayed at the optimum temperature gave an average value of 0.000466, while the four assayed at higher temperatures gave a value of 0.000475.

No such uniform results were secured in testing the samples of strophanthus seed submitted to us. Of the three samples tested at the optimum temperature, the extremes showed a difference of almost 300 percent. The samples tested at slightly lower temperatures gave the same values, agreeing with the best one of the three preceding. Of the three samples tested at higher temperatures, all were efficient in doses smaller than those found necessary at the optimum temperature, two of the samples being efficient in a dose one-fifth that of the smallest dose encountered when the testing was done at the optimum temperature. The average of the five samples tested at temperatures blow 24° was 0.0000086, while the three tested at higher temperatures gave an average value of 0.00000366. Apparently, temperature plays a much more important role in regard to strophanthus than it does in regard to the other members of the digitalis series tested, a point already brought out by Baker (Am. Jour. Pharm. Vol. 84, page 247, 1912).

Several interesting points seem to be evident from the tests of galenical preparations of these drugs. If first the results secured in assaying fluidextracts of convallaria, digitalis, and squill, are examined, it is seen that much greater variation is encountered than was the case in the examination of the crude drugs. Thus in three samples of F. E. convallaria tested at the optimum temperature the variation amounted to 60 percent; while in four samples tested at higher temperatures the variation was 100 percent. In nine samples of F. E. digitalis tested between 20° and 24°, the variation was almost 200 percent., while in four samples tested at higher temperatures the variation was about 54 percent.

In twelve samples of F. E. squill, acetic, assayed between 20° and 24°, there was a variation of 100 percent; while in five samples tested at higher temperatures, the variation amounted to almost 300 percent.

It is with considerable hesitancy that we draw positive conclusions from work carried out as ours has been, but while such uniform results were secured in testing samples of convallaria, digitalis and squill and such variations occurred when it was a question of the fluidextracts, it does seem at least to suggest that something is wrong with the fluidextracts, either the strength of menstruum or method of manufacture.

Houghton has already shown the practical impossibility of producing a satisfactory U. S. P. F. E. Digitalis.

Tr. of Digitalis, U. S. P., is, according to our tests, a more reliable preparation. Of eleven samples tested between 20° and 24°, eight agreed closely in

strength, the variation being only about 8 percent. Of three samples of tincture of digitalis tested at higher temperatures, the variation amounted to 20 percent.

Not only is there lack of uniformity in regard to the strength of these fluidextracts, but both the official fluidextracts and tinctures do not regularly represent the theoretical drug strength. Thus, five samples of convallaria root tested by us gave an average value of 0.000150, while seven samples of fluidextract of convallaria gave an average value of 0.000160.

Twenty-five samples of digitalis leaf gave a value of 0.000481, while thirteen samples of the fluidextract of digitalis gave an average of 0.000850. Seven samples of squill gave an average value of 0.00047, while twelve samples of acetic fluidextract of squill gave an average value of 0.002. The average of the value of fourteen samples of tincture of digitalis was 0.0065 against the average value 0.000481 found on testing the crude drug.

Of scarcely less importance than the digitalis group is ergot. Unfortunately, the work we have done in testing samples of ergot has not been so thorough as the preceding, so any conclusions drawn from the results secured are even more liable to be erroneous.

The method for testing ergot has been the one used for a number of years by Dr. Edmunds, and is a modification of Houghton's. The test animals are white Leghorn cocks of nearly a year old. It is desirable that the fowls be of practically the same age, weight, and kept under similar conditions. The drug, in the form of a fluidextract, in injected deep into the breast muscles, and changes in the comb are noted. The dose administered is considered efficient when distinct bluing of comb and wattles result within one or two hours.

In a number of instances we have run, in addition, blood-pressure experiments, according to the directions of Wood and Hofer, but these results possess, we believe, little importance in view of the work of Edmunds and Hale (Hygienic Lab. Bl. 76, July, 1911.), and our own experience, (Journ. A. Ph. A. Vol 1, p. 412, May, 1912).

Nineteen samples of ergot were tested by the cock's comb method. The first fifteen were administered in a dose of 1.5 gm. per kilo and caused bluing of the comb in that dose,[1] with only one exception, where a dose of 2 gm. per kilo was necessary. The last four samples caused bluing when given in a dose of 0.75 gm. per kilo, but failed to affect the comb when given in a dose of 0.50 gm. per kilo.

Of the nineteen samples, five were tested by the blood pressure method, the results being as follows:

	Initial rise in mm.	5 minutes after inj.	10 minutes after inj.	53 minutes after inj.
1	70	..	..	52
2	37	..	21	..
3	58	..	53	..
4	20	..	24	..
5	65	..	30	..

Fifty-six samples of fluidextract of ergot were tested by the cock's comb method. Of this number only two required a dose of 2 cc. per kilo, while three were efficient in a dose of slightly less than 0.75 cc. per kilo.

[1] No smaller doses were tried.

It might be inferred from these assays that carefully inspected ergot, free from adulterations and visible evidences of deterioration should cause bluing of the cock's comb in a dose of 1 to 1.5 gm. per kilo of body weight of white leghorn cocks as described. From the evidence we have gathered, we are inclined to believe that the official fluidextract of ergot is a good preparation, should run fairly uniform in strength, and should cause bluing of the comb when injected in a dose of 1 to 1.5 cc. per kilo.

So far as we can judge, the white leghorn cocks show no seasonal variation, but this is far from absolutely proven. Age affects their susceptibility to ergot, and individual fowls are encountered that possess increased or decreased susceptibility.

For cannabis indica we have employed Houghton's method, the drug being administered orally to dogs. It is important, we believe, to use one breed only, and fox terriers have seemed to us peculiarly suited for test animals. The method, at best, is crude, and uniform results can scarcely be expected when any mongrel is used.

Five samples of cannabis indica were tested. Two caused symptoms of intoxication in the dogs when given in a dose of 0.015 gm. per kilo; one produced symptoms in a dose of 0.018; one was efficient in a dose of 0.020; and one in a dose of 0.030. Four of these samples were tested near the same time in the years 1909, 1910 and 1912, so season played no part.

Fourteen samples of the fluidextract of cannabis indica were assayed with the following results:

1	0.015	8.	0.020
2	0.018	9.	0.020
3	0.018	10.	0.021
4	0.018	11.	0.024
5	0.018	12.	0.025
6	0.019	13.	0.050
7	0.020	14.	0.050

The last two samples assayed were made from deteriorated drug, so should not be considered. In the remaining twelve samples, the variation amounted to 66 2/3 percent.

It would seem that a standard requiring that 0.020 gm. of cannabis indica (or 0.020 cc. of a fluidextract of cannabis indica) per kilo of a suitable dog should not be a difficult one to conform to.

In conclusion we wish to emphasize the fact that the results we have secured are only suggestive. Were we dealing with definite substances of known strength, inferences as to the values of the methods would be justified, or if we were assaying substances of unknown strength by reliable and universally accepted methods, inferences could be safely drawn as to the probable strength of such substances. As it is, however, we are dealing with two unknowns. That such agreement as has been noted in some cases is the result of coincidence seems scarcely probable, however, and inclines us to place confidence in the methods and results.

DEPARTMENT OF EXPERIMENTAL MEDICINE, ELI LILLY & CO., Indianapolis, Ind.

REMARKS ON ASSAY OF PEPSIN AND ITS PREPARATIONS.

L. HENRY BERNEGAU AND LEO H. GLICKMAN.

The following results were obtained with three various methods for testing the digestive power of pepsin. The amount of undigested egg albumen left after two and one-half hours digestion at 52° C. was practically the same in all three methods, viz: less than 1 cc.

Method No. 1—U. S. P. Method.

Method No. 2—U. S. P. Revised Method.

The latter method is the same as the U. S. P. Method with the following exceptions:

Instead of adding 20 cc. of diluted acid at once to the 10 gm. of white of egg, only 2 cc. at a time is added and the white of egg disintegrated with a glass rod tipped by a piece of pure rubber tubing.

This has an advantage over the U. S. P. Method, as it is much easier to disintegrate the white of egg which has become compressed to a certain extent by passing it through the sieve, in a small volume of the acid solution, than in a large volume, such as 20 cc. added at once.

In the revised U. S. P. Method, during the two and one-half hours digestion the bottles are rotated three times every ten minutes, while in the U. S. P. Method the bottles are inverted. We believe inverting to be superior to rotating.

Referring to that sentence in the U. S. P. Revised Method which states "then remove it from the water bath, add 50 cc. of cold distilled water, transfer the mixture to a conical measure having a diameter not exceeding 1 cm. at the bottom and let it stand for half an hour"; we would suggest that it be substituted by the following: "Remove it from the water bath, pour contents into a conical measure having a diameter not exceeding 1 cm. at the bottom and then wash the undigested egg albumen which adheres to the sides of the bottle, with small portions (about 10-15 cc. at a time) of distilled water until 50 cc. has been used."

We would also suggest that the conical measure be inverted or its contents be stirred after the 50 cc. of distilled water has been added, as this no doubt will accelerate the settlement of the undigested albumen.

Method No. 3—This method is the same as the U. S. P. Method with the following exception:

Instead of disintegrating the white of egg with a rubber-tipped glass rod, the mixture is shaken vigorously for about five times. Results were the same after about two and one-half hours digestion at 52° C., less than 1 cc. of undigested egg albumen was left. Absolutely fresh eggs, not older than five days and always kept in an ice chest, were used in all our experiments.

The same lot of pepsin was used in these tests.

Conclusion—As seen from this outline, all three methods give concordant

results, if carried out strictly according to directions. Personally, we give preference to Method No. 2.

Some samples of pepsin previously analyzed by us and found to be of required strength were submitted, on request, to a certain college for comparative tests.

The amounts of undigested egg albumen left on their assays varied considerably from the amounts we found in our laboratory. Second assays made by us verified our first findings, while at the college different findings were obtained on the second assays.

It is without doubt that in all cases fresh eggs were used, that the pepsin was correctly weighed and that the dilutions were made in standardized measures, etc.

Now, what is the reason for these discrepancies in assay by different parties?

So far as we could see, the only possible cause for the deviation was the different strength of the hydrochloric acid used in making the tests.

That our supposition was correct will be clearly shown by the following:

The percentage of absolute hydrochloric acid in U. S. P. hydrochloric acid made by different manufacturers varies very greatly. The U. S. P. requires 31.9% absolute hydrochloric acid by weight; most of the manufacturers turn out a product which runs higher, usually from 32% to 35%, sometimes as high as 38%. It is therefore absolutely necessary that each lot should be assayed before using for any purpose.

The U. S. P. requires an acid which assays exactly 0.3% hydrochloric acid. That this requirement should be strictly carried out, that no acid assaying lower or higher should be used, the following table will illustrate.

On using 5 cc. of the same pepsin solution and 35 cc. of diluted acid of different strengths the following results were obtained:

I. PEPSIN SCALES

(1)	Tested with	0.21%	HCl. left	5	Cc.	undigested	Egg Albumen
(2)	Tested with	0.30%	HCl. left	1	Cc.	undigested	Egg Albumen
(3)	Tested with	0.328%	HCl. left	1½	Cc.	undigested	Egg Albumen
(4)	Tested with	0.385%	HCl. left	2½	Cc.	undigested	Egg Albumen
(5)	Tested with	0.540%	HCl. left	19	Cc.	undigested	Egg Albumen

II. ESSENCE OF PEPSIN N. F.

(1)	Tested with	0.21%	HCl. left	6	Cc.	undigested	Egg Albumen
(2)	Tested with	0.30%	HCl. left	1	Cc.	undigested	Egg Albumen
(3)	Tested with	0.328%	HCl. left	1½	Cc.	undigested	Egg Albumen
(4)	Tested with	0.385%	HCl. left	3	Cc.	undigested	Egg Albumen
(5)	Tested with	0.540%	HCl. left	17	Cc.	undigested	Egg Albumen

Several other comparative tests were made with the same proportional results. This evidently shows that the egg albumen's digestive power of pepsin is lowered by using either a lower or higher percentage of hydrochloric acid than that of 0.3%.

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A CONVENIENT METHOD FOR THE ESTIMATION OF ALBUMIN IN URINE.

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The determination of albumin in urine by weighing the precipitated albumin or by determining its amount by the Kjeldahl method, requires so much time that it is not adapted to the needs of the clinician. Several methods have been devised for the approximate determination of albumin, depending upon the measurement of the volume of a precipitate after centrifuging or allowing to stand. Upon trying these methods they were found to give results so unreliable as to be of little value.

As titration methods for albumin did not seem practicable, an endeavor was made to obtain the albumin in the form of a precipitate the volume of which would bear a more constant relation to the amount of albumin present. As it had been observed that acetone precipitated albumin in a flocculent form from aqueous solutions, it seemed probable that this precipitate would settle rapidly and compactly owing to the low specific gravity of the acetone. This was found to be the case with specimens of urine containing albumin, but aqueous solutions of serum albumin yielded a precipitate which did not settle readily, indicating that some other constituent of the urine affected the precipitate. Various constituents of normal urine were tried and it was found that if a small amount of monobasic sodium phosphate was added to the albumin solution, the precipitate would settle as rapidly as from urine. It was soon observed that in order to obtain satisfactory results, the urine must be distinctly acid, and for this purpose acetic acid was added to the acetone.

Method—Filter the urine if cloudy and measure 1 cc. from a pipette or burette into a 5 cc. graduated test tube having an internal diameter of 9 mm. Dissolve about 0.04 gm. of monobasic sodium phosphate in the urine and fill the test tube to the 4 cc. mark with a mixture of 98 volumes of acetone and 2 volumes of glacial acetic acid, both of U. S. P. quality. Close the test tube with a stopper, invert slowly six or seven times and then shake vigorously for thirty seconds. Allow the test tube to stand in a vertical position for exactly fifteen minutes; read off the volume of the precipitate and determine the percentage of albumin by reference to the following table:

Cubic Centimeters Precipitate	Percent Albumin	Cubic Centimeters Precipitate	Percent Albumin
0.20	0.09	0.75	0.91
0.25	0.13	0.80	1.01
0.30	0.17	0.85	1.10
0.35	0.22	0.90	1.19
0.40	0.29	0.95	1.29
0.45	0.37	1.00	1.38
0.50	0.45	1.05	1.48
0.55	0.54	1.10	1.59
0.60	0.64	1.15	1.72
0.65	0.73	1.20	1.86
0.70	0.82	1.25	2.05

If more than 1.25 cc. of precipitate is obtained, dilute the urine with an equal

volume of water and make a new test, using 1 cc. of the diluted urine, and multiplying the percentage found in the table by two.

In compiling this table, sixteen aqueous solutions of serum albumin varying in strength from 0.1% to 2.0% were prepared. These solutions were standardized in the following manner. The albumin was precipitated with potassium mercuric iodide, heated in a water bath, separated by filtration and determined by the Kjeldahl method using the factor 6.3. About forty determinations were made upon each of these solutions by the acetone precipitation method. A curve was plotted from the average results obtained, and from this the table was constructed. The use of normal urine instead of water in making up the albumin solutions caused no difference in the results; and in a number of pathological specimens gave results which agreed closely with those obtained gravimetrically. While it can not be expected that a method of this kind will give accurate results, yet if carried out with proper attention to details it will be found to give more accurate results than those obtained by other methods based upon the volume of the precipitate.

The results are not influenced by ordinary variations in temperature; nor by the changes in acidity or amount of phosphates caused by the varying composition of different urines.

Considerable variations in the diameter of the measuring tube or in the manner of mixing the liquids were found to affect the results.

The precipitate settles so rapidly that after fifteen minutes the volume changes very slowly. For this reason, it did not seem necessary to consider centrifugal separation as a means of shortening the method, although it is probable that good results might be obtained in that way.

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THE ASSAY OF SOME U. S. P. CHEMICALS.

FRANK X. MOERK AND JOSEPH W. EHMAN.

Assay processes for chemicals should be made as simple as possible and with the aid of as little apparatus as is consistent with good work. Comparison of past Pharmacopoeias shows remarkable advance in the number of assays directed, and the ninth revision now in progress will undoubtedly show the greatest advance; this is shown by the consideration given to chemicals for which no assay processes have ever been officially prescribed, as in the case of nitrates, chlorates, etc., owing to manipulative difficulties and the need of special apparatus.

ASSAY OF CHLORATES.

FRANK X. MOERK.

A number of processes for the assay of this class of salts have been published which will be briefly outlined:

1. Decomposition of the chlorate by heat into the corresponding chloride

and determining this either volumetrically or gravimetrically; results apt to be low, due to the volatility of the chloride.

2. Reduction by means of sulphuric or acetic acids and metallic zinc; satisfactory results are obtained by gravimetric, but unsatisfactory by volumetric methods (residual titration), owing to difficulty with the end reaction.

3. Reduction with Na_2SO_3 and H_2SO_4; results as above.

4. Reduction with $SnCl_2$ and HCl and titrating excess of $SnCl_2$ with Iodine V. S.; results vary, probably due to atmospheric oxidation of $SnCl_2$, which can, however, be prevented by working in an atmosphere of CO_2.

5. Reduction with KI and HCl and measuring the liberated iodine with $Na_2S_2O_3$ V. S.; results vary, due to the liberation of iodine from the reagents in presence of air, but can be made satisfactory by boiling the reagents in a current of CO_2 and allowing the decomposition of the chlorate to proceed after expelling the air by means of CO_2.

6. Reduction with an excess of a ferrous salt in presence of HCl or H_2SO_4, determining the excess with $K_2Cr_2O_7$ V. S. or $K_2Mn_2O_8$ V. S.; the presence of HCl interferes in the titration with $K_2Mn_2O_8$, while with $K_2Cr_2O_7$ the end reaction is obtained by spotting. The atmospheric oxidization of the ferrous salt is also a source of error.

The following method gave satisfactory results and is free from the objections indicated in the preceding methods, but attention should be called to the ratio between the chemical and the number of cc. of a decinormal V. S., thus:

0.1 gm. $KClO_3$ (99.5%) requires 48.7 cc. N/10 $Na_2S_2O_3$ V. S.
0.1 gm. $NaClO_3$ (99.5%) requires 56.1 cc. N/10 $Na_2S_2O_3$ V. S.

Place 0.1 gm. of the salt in a glass stoppered bottle (150-200 cc), dissolve in 10 cc. water, add 15 cc. KBr sol. (10%) and 20 cc. HCl (sp. gr. 1.20) and allow to stand forty minutes; after cooling the bottle and its contents by immersion in cold water, carefully rinse stopper, using 20 cc. KI solution (10%) and titrate with decinormal $Na_2S_2O_3$ V. S. (Results 99.5%; 99.73%; 99.85% $KClO_3$). 1 cc. N/10 V. S.=0.00204266 gm. $KClO_3$ or 0.0017743 gm. $NaClO_3$.

A blank test should be made to prove that the combined reagents do not liberate iodine.

ASSAY OF BENZOATES AND SALICYLATES.

JOSEPH W. EHMAN.

Methods which have been used in the assay of these classes of organic salts are as follows:

I. Ignition to change into the corresponding carbonates or oxides, which if soluble, are extracted with water and titrated with Acid V. S., methyl orange indicator. Complete ignition to remove separated carbon is likely to entail loss due to the volatility of alkali carbonates; incomplete ignition is followed by a tenacious retention of the alkali carbonate by the charcoal.

2. Ignition to thoroughly char, treating residue with an Acid V. S. in excess, filtering, thoroughly washing with water and titrating the excess of Acid V. S. with an Alkali V. S., methyl orange indicator. Suitable for organic salts of those non volatile metals whose oxides or carbonates can be titrated.

3. Ignition with H_2SO_4, changing organic salt to sulphates; suitable for

organic salts of those metals whose sulphates are stable; in the case of salts of K and Na, persulphates are likely to be formed, giving an excessive weight, but this can be prevented by treatment with ammonia or ammonium carbonate solution, evaporation to dryness and re-ignition.

4. Ignition with $(NH_4)_2SO_4$ as above; this does not form persulphates.

5. In the case of organic salts, the acid of which when liberated may be removed by immiscible solvents, as ether, chloroform, etc., a measured excess of an Acid V. S. may be added, the organic acid extracted with the solvent and the excess of Acid V. S. titrated with an Alkali V. S., (in the aqueous portion), methyl orange indicator.

6. Extraction of the acid as in (5), but allowing the volatile solvent to evaporate at ordinary temperature and weighing the residue of free organic acid.

The following modification of (5) and (6) gave satisfactory results:

0.200 to 0.500 gm. of the salt, placed in a separator and dissolved in 20 to 30 cc. water, add 2 to 4 cc. N/1 H_2SO_4 (or HCl) (note); a mixture of ether 1 vol. and chloroform 2 vols. is used for extraction, of which three portions of 15-20 cc. each are usually sufficient for complete extraction; to the mixed ether-chloroform extractions in a flask, add a little water (10cc.) and titrate with N/10 NaOH V. S., phenolphthalein indicator; or, the first portion separated may be titrated, then the second added, titration continued and so on until no more Alkali V. S. is required to give a permanent pink color to the aqueous layer after thorough agitation.

The following results were obtained:

Sodium Salicylate	Ammonium Salicylate	Strontium Salicylate	Sodium Benzoate	Lithium Benzoate
98.088%	98.28%	98.38%	99.063%	99.059%
99.32%	98.147%	98.38%	97.41%	
99.72%				
100.039%				
100.12%				
98.82%				

Note.—The amount of acid required here is slightly more than the calculated amount to decompose all the salt (e. g. each 0.100 gm. sodium salicylate requires a little over 0.6 cc. N/1 V. S. for an excess).

Chloroform is the most convenient solvent, but more of it is required than of ether; the latter is less convenient to separate, but a heavy mixture of the two has been found quite satisfactory.

CHEMICAL LABORATORY OF THE PHILADELPHIA COLLEGE OF PHARMACY.

THE QUALITY OF DRUGS.*

W. A. PEARSON, PHILADELPHIA, PA.

Asafetida.—Asafetida is a drug that cannot be powdered without considerable loss of the active volatile constituents present. Of five lots of the pow-

* Notes made from the files in the Analytical Department of Smith, Kline and French Co. upon the drugs examined from June 1, 1911, to June 1, 1912.

dered drug examined the ash amounted to 34.3%, 38.9%, 37.7%, 35.8% and 26.4%, and the alcohol soluble portions respectively were 29.5%, 31.1%, 27.6%, 33.1% and 37.9%.

There was an improvement in the quality of the samples of crude drug examined. One trial sample contained 60% of alcohol soluble material and only 6% of ash. However when the consignment arrived and two samples from the cases examined the alcohol soluble material amounted to 38.7% and 37.6% and the ash to 17.1% and 22.4% and two samples of the best lumps in the cases contained 57.8% and 58.3% of material soluble in alcohol and 6.8% and 15.6% respectively of ash.

Acetic Acid.—Two samples were rejected because they were dark in color.

Antimony and Potassium Tartrate.—A trial sample was examined which contained calcium, chlorides, heavy metals, and assayed only 94%.

Tannic Acid.—One sample was examined which contained 1% of ash. This drug continues to be of different colors and quality, no doubt due to its source and method of preparation.

Apiol Green.—The physical appearance and solubility of commercial samples of this drug vary considerably. The color varies from light green to dark brownish green and some samples will mix clear with an equal part of alcohol and some will not. All but one of the four samples examined when mixed with ten times their volume of alcohol formed considerable deposits and only one sample mixed clear with 4 volumes of olive oil.

Alkanet Root—One consignment of this drug was rejected because it was inferior in appearance and was deficient in the amount of coloring matter present. About half of the material was in the form of a gray powder and only 2.2% of Anchusin was present. After rejecting this lot, a consignment was supplied which contained 9.7% of Anchusin.

Burgundy Pitch.—The analytical results on two samples of this drug were as follows:

	Sample No. 1	Sample No. 2
Acid Number	135.0	142.8
Ester Number	32.2	22.0
Saponification Number	167.2	164.8
Iodine Number	131.2	132.1

After the determination of the saponification number the solution was acidified and the alcohol evaporated. This treatment left a clear, dark brown and brittle residue from No. 2, while the residue from No. 1 after similar treatment was a dark brown, sticky, viscid substance with a turpentine odor.

Precipitated Calcium Phosphate.—It is difficult to obtain lots of this product that will comply strictly with U. S. P. specifications. Most of the samples examined failed to respond to test for absence of acid calcium phosphate, excess of chlorides, heavy metals or magnesium. One sample contained 7.5% of magnesium.

Calomel.—This salt becomes dark in color on standing even when protected from the light. It may take a year or more for the color to change perceptibly.

Cannabis Indica.—A Mexican and an American grown sample were found which were much below standard.

Celery Seed.—Microscopical sections were made of the carpels of medicinal

celery seed and compared in detail with the structure of the domestic celery seed. The medicinal celery seed usually contains more than six oil ducts in each carpel while the domestic was never found to have more than six.

Chloroform.—Four samples were rejected on account of the presence of chlorinated products.

Copper Carbonate.—An analysis of a sample of commercial Copper Carbonate was made with the following results:

Solution in hydrochloric acid	Complete
Sulphates	Considerable present
Strength computed as metallic copper	50.2%
Strength computed as copper oxide (CuO)	62.83%

The theoretical percent of metallic copper in the normal copper carbonate ($CuCO_3$) is 51.4% and in the basic Copper Carbonate ($Cu_2(OH)_2CO_3$) is 57.5%.

Cacao Butter Substitute.—This product, known as Vegetable Cacao Butter, has recently been quoted. It is labeled as hard palm kernel fat with cocoa flavor.

	Grade No. 1	Grade No. 2	Grade No. 3
Physical Appearance	Yellowish white	Yellowish white	White
Melting Point	30.5°C	31.5°C	32.5°C
Specific Gravity at 25° C	0.8976	0.890	0.915
Acid Number	4.9	1.08	1.2
Saponification Number	256.0	253.0	258.3
Iodine Value	8.995	7.95	5.21

By comparing the above data with the specifications for Cacao Butter given by the U. S. P. it may be seen that all of the samples above have higher saponification numbers and lower specific gravities and iodine values than U. S. P. permits.

The U. S. P. requires the saponification value to be between 188 and 195, the specific gravity at 25° C. from 0.970 to 0.976 and the iodine value not less than 33 nor more than 38.

The odors of grades number one and number two are very similar to genuine cacao butter, but grade number three has practically no odor.

The taste of all samples resembles that of cacao butter but is somewhat different. It would probably be difficult to detect grades number one and number two without a chemical analysis. Undoubtedly this material could be used as an adulterant of cacao butter, but owing to the considerable variation in specific gravity, saponification value and iodine value a small admixture could be detected.

Disinfectants.—The scientific standardization of disinfectants has now become a possibility through the use of the Rideal-Walker Method, and not only can the relative merits of disinfectants be accurately stated, but disinfectants may be standardized under a variety of conditions and the best product for a specific purpose ascertained.

Digitalis Leaves.—One sample was tested which was not sufficiently active physiologically. 0.23 gm. of the drug was required to kill a 250 gm. guinea pig.

Ergot.—One solid extract, three powdered extracts, two fluid extracts, a sample of Ergotin Bonjean and an active extract of this drug were found which would not raise the blood pressure of a dog nor darken the comb of a rooster.

Glycerin.—Two samples were rejected on account of their yellow color and excess of butyric acid.

Goose Grease.—One sample was rejected on account of its rancid odor, objectionable deposit and an excessive (7.14) acid number.

Gambir Cubes.—The U. S. P. states that Gambir should contain at least 70% of material soluble in alcohol and that when incinerated it should leave not more than 5% of ash. The five samples examined contained the following proportions of alcohol soluble matter and ash:

	Soluble in Alcohol	Ash
Sample No. 1	78.5%	5.2%
Sample No. 2	82.8%	4.6%
Sample No. 3	80.2%	5.2%
Sample No. 4	82.0%	3.7%
Sample No. 5	77.6%	4.9%

Honey.—One sample was found which was evidently adulterated with cane sugar.

Indian Gum.—This gum is no doubt used even at the present time as an adulterant of tragacanth and has to some extent replaced tragacanth. Nine samples of Indian gum were compared and the mucilages made from them were found to vary considerably both in color and consistency. A good sample of Indian gum will form a stiff jelly with 50 parts of water, and the jelly is not very much darker than a similar jelly made with tragacanth.

Ferrous Lactate.—Two samples were compared. Both samples contained excessive amounts of sulphates, were not completely soluble in forty parts of water and left excessive residue on ignition.

Japanese Hemp Seed.—The sample examined was somewhat smaller and lighter in color than the ordinary variety.

Vienna Lime.—One sample was analyzed with the following results:

Physical Appearance	Yellowish white powder
Silica (SiO_2)	0.75%
Iron and Aluminum Oxides (Fe_2O_3, Al_2O_3)	0.75%
Calcium Oxide (CaO)	61.47%
Magnesium Oxide (MgO)	36.75%

Leptandrin.—Two samples were examined with the following results:

	Alcohol Soluble	Ash
Sample No. 1	79.95%	3.1%
Sample No. 2	94.13%	1.175%

Mercuric Chloride.—One sample was found which was dark in appearance.

Magnesium Sulphate.—The U. S. P. states that this salt must be 99.7% pure, but gives no tests for limit of chlorides. When the chlorides are estimated in many samples of commercial magnesium sulphate the amount of chlorides present computed as magnesium chloride amount to over 0.3%, hence these products cannot be of U. S. P. quality.

Peppermint.—A sample of peppermint leaves and one of peppermint herb were examined which contained spearmint leaves and spearmint herb respectively.

Olive Oil.—When the government permitted olive oil to be imported duty free, after being denatured with 8 ounces of oil of rosemary to each barrel, the quality of the second grade of olive oil, which had previously been used for lubricating purposes, was denatured, and the quality of the lubricating oils became lower. This may have resulted from various causes, such as the fact that 8 ounces of oil of rosemary in each barrel could scarcely be detected and the denatured olive oil could no doubt be used in many cases in place of the

duty paid oil. At any rate the acid numbers of the commercial lubricating olive oils were higher than before. Previously the acid numbers were approximately 10 to 15, but samples were found during the past year which had acid numbers as follows: 31.2, 31.0, 27.7, 27.7, 31.0 and 40.1. Lots were obtained however after some difficulty which were equal in quality to those obtained in former years.

Oil of Citronella. The geraniol content of three lots was estimated with the following results: 49.2%, 52.7% and 56%.

Oil of Cajuput.—Traces of copper were found in both samples examined, and one sample had an optical rotation of -3° 21′, which is over one degree greater than the U. S. P. allows. It is stated that authentic samples have an optical rotation up to -3° 40′.

Cottonseed Oil.—One sample had a saponification number of 188 and an iodine number of 109.

Oil of Turpentine.—The quality of this commodity has greatly improved during the past year but many samples are not colorless as the Pharmacopœia demands. Until the price is dependant upon the amount of color present we cannot expect to uniformily obtain commercially a colorless product.

Oil of Wintergreen.—One lot was rejected on account of the probable addition of synthetic methyl salicylate.

Oil of Sweet Almond.—One sample was examined which had the following characteristics:

Specific Gravity at 25°C	0.9161
Acid Number	1.98
Saponification Number	194.8
Iodine Number	110.27
Bromine Number	63.0
U S. P. Nitric Acid Test	Abnormal
Olive, Arachis, Cottonseed, Sesame and other fixed oils	Negative
Bielier's Test	Abnormal
Nitric Acid Test (A. J. P. 1886, page 408)	Abnormal
Congealing Point of fatty acids	0°C
Melting Point of mixed fatty acids	+3°C

This oil did not conform to U. S. P. specifications in several respects and we considered that it contained apricot kernel oil.

Oil of Pennyroyal.—Six samples were examined with the following results:

	Specific Gravity at 25°C	Optical Rotation at 25°C	Solubility in 70% Alcohol
Sample No. 1	0.9197	+30° 14′	In 0.7 parts
Sample No 2	0.9242	+27° 44′	In 0.7 parts
Sample No. 3	0.9196	+29° 40′	In 0.7 parts
Sample No. 4	0.9218	+28° 29′	In 0.8 parts
Sample No. 5	0.9222	+25°	In 0.8 parts
Sample No. 6	0.9195	+24° 58′	In 0.8 parts

Poppy Seed Oil.—One sample was examined which would not dissolve in 100 volumes of cold alcohol. Although Lewkowitsch states that poppy seed oil should be soluble in 25 volumes of cold alcohol and six volumes of boiling alcohol, we have never examined an oil that would conform with these specifications.

Lard Oil.—One sample was found which had an iodine value of 81.67. The U. S. P. states that lard oil should have an iodine value of not less than 56 nor more than 74.

Rennin.—One sample, labeled "Free from salt," was examined for chlorides. A considerable quantity was found.

Resorcinol.—This product frequently has a slight pink cast which may gradually become darker. One lot was rejected on account of its inferior appearance.

Resin of Jalap.—One sample was examined which contained 3.8% of moisture and did not strictly fulfill the U. S. P. specifications for limit of saponifiable substances.

RosinOil.—Two samples were examined with the following results:

	Sample A	Sample B
Color	Dark reddish brown	Reddish brown
Specific Gravity at 25°C	0.989	0.9043
Acid Number	56.37	41.37
Saponification Number	69.85	56.94
Ester Number	13.48	15.57
Iodine Number	84.3	41.6
Unsaponifiable matter	59.8%	73.9%

We considered that Sample B was adulterated with mineral oil.

Resin of Scammony.—Four samples were examined with the following results:

	No. 1	No. 2	No. 3	No. 4
Proportion soluble in alcohol	98.85%	98.65%	99.25%	99.1%
Proportion soluble in ether	99.55%	98.25%	55.54%	55.41%
Proportion soluble in turpentine	Insoluble	Insoluble	Insoluble	Insoluble
Appearance of NaOH solution	Cloudy	Cloudy	Cloudy	Cloudy
Appearance of NaOH solution after adding acid	Cloudy	Cloudy	Cloudy	Cloudy
Acid Number	17.7	18.5		
Ester Number	224.1	209.0		
Saponification Number	241.8	227.5		
Sulphuric Acid Test (A. J. P. April 6-1912)	Normal	Normal	Abnormal	Abnormal

We considered samples No. 3 and No. 4 of inferior quality probably prepared from Mexican Scammony.

Fluidextract of Sanguinaria.—One sample was assayed which contained only 1.8 gm. of alkaloids in 100 cc.

Spigelia.—One lot was examined which contained roots of seven different plants, however most of the sample consisted of spigelia marilandica.

Sodium Bromide.—One sample was rejected on account of an excessive amount of bromate present.

Saffron.—Several samples were examined which would not conform to 1890 U. S. P. test for absence of coal tar colors.

Purified Talc.—One sample was examined which lost 6.1% on ignition. The loss was due mainly to the presence of carbonates.

Venice Turpentine, Artificial.—Three samples were examined with the following results:

	No. 1	No. 2	No. 3
Acid Number	106.8	118.0	127.7
Ester Number	21.2	16.0	18.1
Saponification Number	128.0	134.0	145.8

Wild Cherry Bark.—Two lots were rejected because the bark failed to conform with the U. S. P. description. Most of the barks on the market are too thick and old.

I desire to express my indebtedness to my co-workers, J. G. Roberts, H. M. Sechler, M. Becker and R. I. Grantham for much of the analytical work connected with the above contribution.—ANALYTICAL DEPARTMENT, SMITH, KLINE & FRENCH CO., JUNE 12, 1912.

PURITY OF CHEMICALS AND DRUGS.

H. ENGELHARDT, BALTIMORE, MD.

During the year between June 1, 1911, and May 31, 1912, about seven thousand shipments of chemicals were examined. As I have pointed out on a previous occasion, the Pure Food and Drugs Act has exerted a very beneficial influence on the drug market, inasmuch as only a very few lots were found which were unfit for use. Not one lot was received which was greatly adulterated; those chemicals which were rejected being carelessly manufactured.

A lot of *Sodium Hydroxide* assayed far below 90 percent of absolute hydroxide, and contained an appreciable amount of carbonate.

A large shipment of *Powdered Opium* contained less than 12 percent of crystallized morphine.

A shipment of *Milk Sugar* contained an undue amount of cane sugar, when tested according to the U. S. P. even by keeping the temperature of the mixture of dilute alcohol and sugar below 15° C.

Potassium Carbonate. One lot assayed only 94.5 percent.

Beechwood Creosote. Several lots were received which possessed an odor recalling that of carbon disulphide.

Gold and Sodium Chloride. Two lots assayed only 22 percent of metallic gold.

Nitroglycerin Solution. One lot which assayed only 8 percent of nitroglycerin instead of 10 percent had to be rejected. In connection with this article and *Spirit of Nitroglycerin* it may be said that rather accurate results are obtained by allowing 5 cc. of the solution to evaporate spontaneously and drying the residue in a desiccator over sulphuric acid to a constant weight. The results thus obtained compare favorably with those obtained by the colorimetric methods with phenoldisulphonic acid or naphthylamine. The requirements for *Spirit of Nitroglycerin* given in the U. S. P. should be changed. The specific gravity of a one percent solution is about 0.817 at 25° C., and 10 cc. of the solution, when cooled at 15° C. and mixed with 11 cc. of distilled water of the same temperature should show a faint opalescence, and on the addition of 1 cc. more of water should exhibit a turbidity.

Calcium Glycerophosphate. Considerable trouble was experienced with this salt. Although both by incineration and titration it could be shown that the salt was free from di- and tri-phosphoric acid ester, it possessed peculiar physical properties, which rendered it insoluble in 30 parts of water. When brought in contact with water insufficient for solution, the salt caked and did not retain its granular form. We are still engaged in an investigation of this salt, and we hope to report on this article at an early date.

Various other shipments of drugs had to be rejected for minor reasons, but in general, as mentioned before, the chemicals were entirely satisfactory.

Less satisfactory were the vegetable drugs submitted to us, as may be seen from the following:

Aconite Root. Of eleven samples examined, five assayed below 0.5 percent of ether-soluble alkaloids. The variation in alkaloidal strength was from 0.39 to 1.0 percent.

Asafetida. Twenty-four samples were examined. Eight of these contained less than 50 percent alcohol-soluble matter and in ten the ash exceeded 30 percent. The following results were obtained:

Alcohol Soluble Matter	Ash	Alcohol Soluble Matter	Ash
66.6	32.0	77.5	15.3
74.8	6.2	56.6	33.0
67.6	1.4	75.3	4.9
48.1	22.6	40.8	42.2
48.9	39.3	71.9	14.1
49.0	30.5	51.0	40.0
79.8	3.0	80.0	8.0
40.0	43.1	50.0	58.0
70.0	8.7	69.5	16.0
72.3	9.6	56.3	7.0
57.8	24.0	42.7	36.0
30.8	50.0	33.0	45.3

Belladonna Leaves. None of the samples examined were below U. S. P. strength. The percentage of alkaloids ranged between 0.36 and 0.60 percent.

Belladonna Root. Eleven out of twenty-six samples were deficient in alkaloids. The standard for this drug should be retained at 0.45 percent or even be reduced to 0.4 percent.

Benzoin. Ten out of sixteen samples of this item contained less than 80 percent alcohol-soluble matter, but all samples yielded on incineration less than 2 percent of ash.

Black Pepper. Four samples yielded on extraction 10.6, 12.5, 9.2 and 11 percent, respectively, of oleoresin.

Calabar Bean. Only two out of four samples came up to the required 0.15 percent of ether-soluble alkaloids, when assayed by the U. S. P. method. The latter should be modified by allowing the alkaline liquid to be shaken with ether (about ten times) until the alkaloids are completely extracted.

Capsicum. Six samples yielded 13.1, 14.8, 15.26, 15.8, 11.3 and 11.0 percent of oleoresin, respectively.

Cinchona Calisaya and *Red Cinchona.* All twenty-seven samples came up fully to the required strength.

Coca. The samples submitted (eight) were of good quality, some assaying 1 percent and more of ether-soluble alkaloids.

Colchicum Root. Of eighteen samples, six were below U. S. P. strength, and of

Colchicum Seed two samples out of six were deficient in colchicine, when examined by the unreliable official method.

Cubeb. The percentage of oleoresin varied from 18 to 25 percent.

Ergot. Fourteen samples out of forty-five had to be rejected partly on account of being deficient in cornutine and partly because they were in a moist and mouldy condition.

Golden Seal. One sample assayed only 1.5 percent of hydrastine, while eight other samples assayed higher than the U. S. P. requires. Some contained 3.5 percent and more of hydrastine.

Guaiac. Thirteen samples were examined. Two contained less than 85 percent of alcohol soluble matter, and in four the ash exceeded 4 percent.

Guarana. Four samples assayed 4.2, 4.28, 4.5 and 3.9 percent respectively of caffeine.

Gamboge. All six samples were of good quality.

Ginger. The percentage of oleoresin in Jamaica ginger varied from 2.81 to 5.24 percent. Eight samples were tested.

Henbane. We were compelled to reject seventeen out of thirty samples because they were deficient in mydriatic alkaloids. The standard for this drug should be reduced to 0.07 percent.

Ipecac. Both the Carthagena and Rio varieties were of fairly good quality. Five samples out of twenty-eight of the former and one sample out of eight of the latter were rejected.

Jalap. During the year previous to the last the samples of Jalap were of much better quality than those received during the latter period. Although we had no difficulty in obtaining a drug with 10 percent and more of resin, some samples even containing as much as 15 and 20 percent, many samples of poor quality were offered. We were compelled to reject seventeen out of thirty-seven samples or almost 50 percent. Some of these assayed below 5 percent of resin.

Kola. Seven samples out of twenty-one contained less than 1.5 percent of caffeine.

Kino. The solubilities of six samples of kino were the following:

Boiling Water	Alcohol
79.4	14.5
97.4	89.4
95.3	82.8
91.6	39.1
98.8	65.5
89.5	86.1

Lupulin. Twelve samples were examined. Eight contained below 60 percent of ether-soluble matter and eleven yielded on incineration more than 10 percent of ash. The latter in some of the samples amounted to 35 percent.

Myrrh. Of six samples of myrrh, the solubility in alcohol varied between 26.0 and 40.73 percent. On incineration, ash was obtained which varied between 4.56 and 11.9 percent.

Nux Vomica. All samples complied with the official requirements.

Opium. Thirty-two cases of opium were examined. The percentage of crystallized morphine averaged about 11.0 percent.

Parsley Seed. Three samples yielded 14.7, 11.4 and 13.04 percent, respectively, of oleoresin.

Strophanthus. All the samples examined were Kombé seed and contained more than six percent of strophanthin.

Stramonium. Eight samples were examined and were found to be of good quality. Some assaying nearly 0.5 percent of mydriatic alkaloids. There was no good reason for reducing the standard of this drug.

BALTIMORE, MD., June, 1912.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixtieth Annual Convention

REPORT OF COMMITTEE ON NATIONAL FORMULARY.*

C. LEWIS DIEHL, CHAIRMAN, LOUISVILLE, KY.

The Committee on National Formulary have the pleasure to report that in so far as the revision of formulas now in the National Formulary, as well as the new formulas that have been accepted for inclusion in the N. F. IV are concerned, the work is practically completed. We are now ready to prepare mimeograph copies and to submit to the Council the formulas of the text, with very few exceptions, if the Association decides to publish the work without further delay.

In this case, however, it will be impracticable to give as complete a description, definition, and test of identity and quality for the drugs prescribed in the formulas which now have no U. S. P. standard, and this is considered desirable by our Committee since the Book is recognized under the provisions of the Food and Drugs Act of June 30, 1906. With immediate publication it will become necessary to confine these descriptions, in the revised edition, to the simple definition of the source and quality (kind) of drug or chemical, without giving tests to serve as standards.

This will probably comply with the letter of the law, inasmuch as the correct scientific title and common name, the botanical derivation and part used, if of vegetable origin, or the chemical formula, derivation and state of aggregation, if of mineral origin would seem to adequately establish the identity of the substance in question.

Nevertheless, this expedient should be adopted only tentatively, and only if the Association directs that the book be published without further delay, and then the successors of the present revision committee of the National Formulary should be appointed with the understanding that they shall vigorously continue in the endeavor, inaugurated by their predecessors, to provide suitable monographs for all articles for which no official standard is given, so that, when completed, it may be published as a supplement to the present revision, or may form the basis for a fifth revised edition.

However, it has lately been suggested that inasmuch as the completion of the National Formulary revision will come only a short time before the appearance of the U. S. P. IX, it might be opportune to issue the two National Standards —the U. S. P. and the N. F.—simultaneously. The advocates of this measure have pointed out a number of advantages resulting from the simultaneous preparation and publication of the two books as authoritative standards; the most im-

* Presented at the Joint Session of the Committees on United States Pharmacopoeia and National Formulary at the Denver Meeting, August, 1912.

portant being that the two standards could be made to harmonize and would therefore contain no conflicting formulas or tests. Those opposed (although in the minority) have advanced good reasons why this should not be done—chiefly the undesirability of delay. A simultaneous appearance of the two books seemed to have preference in the opinion of a large majority of the members, and when it was brought to a vote the Committee decided to recommend to the Association the postponement of the publication of the N. F. IV, until the revision of the U. S. P. IX also is completed in all its essential details.

One of the important arguments brought to bear on this decision was that the delay would enable the Committee to provide satisfactory monographs for the drugs and chemicals prescribed in the formulas, which will not be included by the Pharmacopœia, thus satisfying in every particular the requirements of the book under the provisions of the National Food and Drugs Act.

In this connection it should be stated that the Chairman of the Committee on Unofficial Standards (Mr. Beringer), in a recent communication to this Committee, has expressed his personal opinion to the effect:

"that when the publication of the N. F. has progressed to the point where the manuscript for Part 2 will be necessary, the work will be sufficiently well in hand to proceed without material delay."

However, as the proposed simultaneous appearance of the U. S. P. and N. F. will offer many advantages to both books and to the users of the books, and as the revision of the U. S. P. is proceeding rapidly, and will therefore occasion very little delay in the appearance of the N. F. IV, we recommend that the plan of simultaneous appearance be approved by the Association, and that the N. F. Committee of Revision be authorized to cooperate with the U. S. P. Committee of Revision in preventing duplication of formulas or conflicting statements, requirements, or tests in the two official standards.

In fine, to recapitulate:

"We are prepared to supply the manuscript of the introductory chapters and formulas for a revised edition of the National Formulary, which, with a few exceptions, are now ready for mimeographing, while the exceptions are in advanced conditions, so that they will not occasion delay if immediate publication is decided."

"The preparation of standards and tests for articles not official in the U. S. P. is not sufficiently advanced to formulate the monographs for inclusion as Part II of the National Formulary, if it is decided to publish at once, and the Committee do not consider it wise to establish standards for some articles and to omit them from others."

"We therefore recommend that, if it is declined to publish the N. F. at once, a simple description, sufficient to establish identity, be given "tentatively" for all articles mentioned in Part II—to be supplanted in due course by monographs establishing carefully formulated standards and tests."

"For these considerations, and other obvious advantages, we recommend postponement of the publication of the N. F. IV, until it can be issued simultaneously with the U. S. P. IX: this plan, in all probability, affording the time necessary for preparing properly formulated standards and tests for all the articles mentioned in Part II, and serving to so complete the present revision."

For general information a brief statement of the present status of the work

accomplished is appended to this report, together with several exhibits, outlining in greater detail the work that remains to be done.

Now, personally addressing the Association in conclusion, the Chairman deplores his inability to attend the meeting at Denver. After an experience of two visits to Denver and vicinity—the one in 1895, the other in 1907, he is convinced that the unaccustomed high altitude and the necessarily strenuous exertion during the meeting would make it imprudent to repeat an experience which, particularly in 1907, came near to ending disastrously. He regrets this the more, because aside of denying himself the great pleasure of meeting his friends and associates, he is prevented from consulting with the members of his Committee on important questions still in abeyance. He feels confident, however, that the members of the N. F. Committee present at Denver will hold a conference and will supplement this report by such additional recommendations as may seem to them expedient in furtherance of the betterment of the book as a National Standard of Authority.

ADDENDUM TO REPORT ON THE NATIONAL FORMULARY.

SUMMARY OF THE PRESENT STATUS OF THE REVISION.

(To August 10, 1912.)

As recorded in the Bulletins of the N. F. Committee and from individual reports made to the chairman.

(Under the term "Article" are included both the formulas for the preparations and the introductory or explanatory chapters in the N. F. and "Appendix.")

Number of articles in the N. F. III	501	
Number of articles in the "Appendix"	116	
Total number of articles between the covers of the book		617
Articles dismissed from the N. F. III	96	
Articles rejected from the "Appendix"	60	
Total number of articles dismissed or rejected		156
Articles retained from the N. F. III in N. F. IV	405	
Articles admitted from "Appendix"	56	
Total number retained and admitted from the N. F. III and "Appendix"		461
New articles admitted in N. F. IV		107
Total number of articles to be included in Part I of the N. F. IV		568

MONOGRAPHS OF STANDARDS FOR PART II.

Number of monographs published in the "Journal"	61	
Number still to be formulated	132	
Total number (of which 63 for the additions) required		193

COLOR STANDARDS, ETC.

The referees have submitted for review by Sub-Committee "C" the text, with their approval, for nearly all of the 568 articles accepted for inclusion in Part I of the N. F. IV; the only exceptions of importance being the Color Standards, necessary as a basis upon which the formulas for Tincture of Cudbear, Compound Tincture of Cudbear, and Tincture of Caramel can be constructed; and a chapter on Sterilization is also as yet in a tentative form, awaiting a conference with the Committee of Revision of the U. S. P. in order to harmonize the texts for the two standards. As to the Color Standards, the Chairman of the Special Committee (Mr. Arny), reports that he will present a paper at the annual meeting which will, in his opinion, satisfactorily solve the problem.

In further explanation of what remains to be done to complete the revision, the following "Exhibits," itemizing the articles that were reported as not ready August 9, 1912, and those

articles that have been since reported in Bulletin No. 48 (August 10, 1912,) as being practically ready, are herewith appended.

EXHIBIT I.

Articles referred to Committee "C" not submitted to Committee "D," as reported by Mr. Cook, August 9, 1912.

a. Preparations from the N. F. III:

The following fluidextracts:

139	Adonidis	152	Convallariae (flor)	164	Juniperi
140	Aletridis	153	Coptis	165	Kavae
141	Angelicae Rad.	154	Cornus	168	Petroselini Rad.
142	Apii Grav.	156	Corydalis	170	Sterculiae
143	Aralia Racemosae	157	Coto	171	Stillingiae Co.
144	Arnicae Flor	158	Fuci	172	Trillii
145	Boldi	159	Helianthemi	173	Turnerae
146	Buchu Comp.	160	Humuli	175	Verbasci
147	Calendulae	161	Hydrangeae	176	Verbenae
149	Caulophylli	162	Jalapae	177	Zeae
150	Coffeae Tostae	163	Juglandis		

NOTE: The referee, Mr. Beringer, submitted the above formulas with his approval, based upon careful preparation.

b. New Preparations:

1 Fluidextract of Baptisia.
2 Fluidextract of Chionanthus.
3 Fluidextract of Cinchona, Aqueous.
4 Fluidextract of Condurango.
5 Fluidextract of Cocillana.
6 Fluidextract of Dioscorea.
7 Fluidextract of Drosera.
8 Fluidextract of Echinacea.
9 Fluidextract of Euphorbia Pilulifera.
10 Fluidextract of Helonias.
11 Fluidextract of Cataria (Nepeta.)
12 Fluidextract of Senecio.
13 Fluidextract of Trifolium.

NOTE: In N. F. Bulletin No. 48, p. 652-65, Mr. Beringer makes a supplementary report as referee, in which he meets some of the adverse criticisms that have apparently prevented action on some of the fluidextracts above mentioned, namely (by number) 1, 2, 4 and 6 to 13 inclusive.

EXHIBIT II.

Articles for which text is not completed yet by Committee "D," reported as unsettled by Mr. Cook, August 9, 1912.

a. Preparations from N. F. III:

1- 44 Elix. Cinch. Iron & Calc. Lactophos. (Ra to supply formula.)
2-110 Emplast. Aromat.
3-203 Liquor Alumini Acetatis.
4-220 Liquor Ferri Oxychloridi.
5-462 Tinct. Persionis.
6-463 Tinct. Persionis Comp.

b. New Preparations:

1 Elixir of Formates.
2 Solution of Aluminum Acet., Crude (Burrow's Solution.)
3 Solution of the Bromides of Gold, Arsenic and Mercury.
4 Solution of Hydrastine Compound.
5 Syrup of Ammonium Hypophosphite.
6 Syrup of Quinine with Chocolate.
7 Sterilization (General Article.)
8 Tincture of Caramel.
9 Ferri Oxidum Saccharatum. (Ra to supply formula.)
10 Spice Poultice (Pulvis Aromaticus Rubefacius.)
11 Extract of Aconite Leaves
12 Extract of Conium } if these shall be necessary.
13 Extract of Ignatia
14 Fluidextract of Galega.
15 Fluidextract of Solanum.
16 Fluidextract of Thuja.
17 Fluidextract of Thyme.

EXHIBIT III.

The following is an outline of the report on the progress of the work done by the Committee on Unofficial Standards in connection with the definitions of standards for articles included in N. F. formulas and not described in the U. S. P.

The number before the name of the article indicates the number of the N. F. formula in which the article is used, while the numbers after the names refer to the pages of the Journal of the American Pharmaceutical Association or to the pages of the Circular Letters to the Committee on Unofficial Standards on which the article is described or discussed.

Articles without a number preceding them are either included in proposed additions to the N. F. or are being discussed by the Committee on Unofficial Standards for other reasons. All of the articles that have been published in the Journal of the American Pharmaceutical Association are available for inclusion in the N. F. at this time in compliance with the rule adopted by the Council at the Boston meeting.

The articles to which no page numbers are appended have, as yet, not been discussed by the Committee on Unofficial Standards.

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POINTS OF CONTACT BETWEEN THE UNITED STATES PHARMACOPŒIA AND THE NATIONAL FORMULARY.

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The enactment of the Federal Food and Drugs Act which recognized the United States Pharmacopœia and the National Formulary as the authorities for medicinal standards, established a relationship between these two books which cannot be ignored.

The U. S. P., prior to this time, had been accepted in a half-hearted way as the standard for strength and purity of medicinal substances, and the enforcement of its requirements was rather through moral than legal means.

On the other hand the National Formulary had been created as an aid and convenience to the practicing pharmacist and physician and with little thought of its becoming a legal standard.

At the time of the passage of the National law the position of the two books was well defined; each occupied its place and with no thought of rivalry.

The U. S. P. was acknowledged by all to have the right to select the best drugs, chemicals and preparations which were available and when this selection had been made the N. F. Committee went over the remaining field and endeavored to unify those preparations which were used more or less popularly by both physicians and laymen but which had not been considered of sufficient importance to occupy a place in the Pharmacopœia.

The ground covered by the National Formulary was of acknowledged importance and for years the book has fulfilled this mission.

However, with its recognition under the Food and Drugs Act, as a legal standard, new importance has attached itself to the Formulary and its position has been somewhat changed. It yet retains a secondary place as compared with the Pharmacopœia and rightly so, but the secondary place consists only in the im-

portance of the articles recognized and not in the character of treatment which they are given in the text.

The formulas, standards and requirements laid down in the National Formulary for the Fourth Edition should be as carefully selected and as accurately prepared as those entering the U. S. Pharmacopœia since they will be subject to the same likelihood of a test before the courts.

As both the U. S. P. and the N. F. are authorities under the Food and Drugs Act, great care must be used to avoid conflicting statements in the two books. Formulas for preparations having the same title should not be admitted to both books. Methods of procedure as outlined in General Chapters, such as methods for making Fluidextracts and Extracts, Sterilization procedures, etc., or Introductory Notices, containing methods for taking physical constants, weight and measure standards, etc., etc., should be in accord. Tests of the same character should be made to harmonize, assay processes for drugs and preparations should be similar, etc.

It can be seen from the lists of admissions and deletions of the U. S. Pharmacopœia, which so far have been published, that the proposed admissions to the N. F. IV, presented by the N. F. Revision Committee at the Boston meeting, should be somewhat altered if the two books are to avoid this undesirable duplication. For instance, in the N. F. IV list of formulas we find Magma Magnesiae and Magma Bismuthi, both these having been admitted to the U. S. P. IX.

Among the Drugs and Chemicals of the N. F. IV list we find: Calcium Glycerophosphate, Calcium Lactate, Condurango, Diastase, Hydrastine Hydrochloride, Phenolphthalein and Sodium Glycerophosphate, all of which have been admitted to the new Pharmacopœia.

A study of the published list of deletions from the U. S. P. VIII also indicates that the N. F. has before it the necessity of introducing a number of additional formulas, drugs and chemicals if it is to fulfill its mission, i. e., to establish standards for those medicinal substances which are used but which the U. S. P. does not consider it wise to include.

In this list of deletions, as originally published, were 154 articles. Many of these are largely used and those of merit should be given recognition by the National Formulary, without loss of time, so that an official standard is maintained.

It must also be recognized by the Association that the N. F., being a book of standards under the law, must include tests in the new edition. The present Revision Committee is endeavoring, through the cooperation of the Unofficial Standards Committee of this Association, to provide adequate standards and tests for preparations, where necessary, and also for drugs and chemicals not recognized by the U. S. P., but which are used in the formulas.

If the statements just made are justified and in the best interests of both the U. S. Pharmacopœia and the National Formulary there is a natural conclusion that to bring about this condition the two National Standards should be revised simultaneously and should be published and made official at the same time.

This would make possible a number of desirable conditions:

First. A fifth edition of the National Formulary would not be required immediately, a necessity which would cause much dissatisfaction among purchasers

of the fourth edition, because of extra cost; among manufacturers of preparations because of stock and labels; among pharmacists, physicians, students, teachers and members of pharmacy boards because of new standards to learn, etc., etc.

Second. Legal complications would be avoided by having all standards and tests in harmony and no duplicate formulas. Also if it becomes necessary to pass new legislation to establish the new Revisions as the legal standards, the procedure will be simplified if both books can be acted upon at the same time.

Third. Ample time will be afforded for a satisfactory completion of the standards and tests being prepared by the Unofficial Standards Committee, a feature of the new edition which will have much to do with its acceptance in future legislation.

I therefore hope that this session of the committees on U. S. P. and N. F. of the A. Ph. A. will approve of the harmonizing of requirements and tests, entering the N. F. IV, with those of the U. S. P. IX; the elimination of duplicate formulas and standards and the publication of the National Formulary IV simultaneously with that of the U. S. P. IX, and also that the Association will ratify this plan at this meeting.

HOLD ON TO WHAT YOU HAVE.

Any master carpenter can build a house with the help of his assistants and turn it over to the owner; can the owner keep it in repair? Any master plumber can install a plumbing system in this house; can the owner find the cause and mend the leaks? Any licensed druggist can open a drug store and if he has good credit obtain stock and supplies from wholesale houses and manufacturers; but can he run his business at a profit to himself and to his customers? He cannot unless he knows his house or business intimately and knows where the defects are. Every man who has a home of his own knows the smooth running of that home and its domestic happiness depends upon the infinite care taken with little details and the attention paid to little things, trifles to outsiders, but all important to the comfort, peace and happiness of the home. So it is with the drug store; it is the little things that count, not the occasional big things. One can receive and recover from a quick knife thrust, but who of us can stand the constant pricking of a pin; it may not be deadly to the body but it is to the mind and temper.

So it is with the little things of business; it is the neglect of little things that has wrecked many a seemingly profitable venture, and of all business men the druggist should pay attention to little things. There is so much opportunity for waste in the drug store, so many ways by which a little carelessness or neglect can cause loss of real money that the first article of the creed of every druggist should be, "Take care of the little things lest the little things neglected bring care to you."—*American Druggist.*

Section on Education and Legislation

Papers Presented at the Sixtieth Annual Convention

WHEN IS EDUCATION NOT EDUCATION?

CHARLES H. LA WALL, PH. M., PHILA., PA.

The answer to the foregoing question might be placed in the same class as the answers to the famous queries, "Why does a hen cross the road?" and "When is a door not a door?" but looking at it from a practical standpoint let it suffice for the present to assume that an education is not an education when it does not lead to some definite end or when it fails to give the individual a return commensurate with the time and labor expended in its acquisition.

There is a tremendous spirit of unrest abroad at present affecting various educational lines, not only professional but also that which is commonly called preliminary education. Writers in a number of popular magazines have recently voiced their disapproval of existing conditions in the public schools where the blame seems to be laid upon the system and not upon the teachers, by critics alike from the laity and from the ranks of the educators themselves. A complete rearrangement of our public school system has been prophesied for the near future and judging from the average results of the present system it is high time that some kind of a change is made. A system which, as the present one does, deals with wholesale promotions of students unfit to cope with the studies in the classes to which they are advanced and which pays no attention to the individual capabilities or requirements, is radically wrong and much of the lost motion and wasted energy could and should be utilized to advantage in a more profitable manner.

These troubles in the preliminary (grammar and high) schools and the lack of uniformity in these schools, not only in different parts of the country, but often in the same state, are the cause of many of our troubles in teaching pharmacy. Some public schools at the present time have their work arranged so that all study periods are provided for in the school roster and no home work is expected or even allowed.

Is it any wonder that we find boys of from seventeen to twenty years of age with high-school certificates in their possession who fail utterly when they are confronted with the necessity of adapting themselves to the new and strange condition of acquiring a large part of their knowledge from didactic instruction, which in order to be effective must be supplemented by reading?

Many of these boys make a fine showing at first; they are good memorizers but poor thinkers, but it is not enough to know a definition by heart, it is also

necessary to understand the *meaning of the definition.* This requires concentration, study and thought. He who is educated is he who can paraphrase a definition or change its verbiage while retaining its essential meaning, but how many are taught to alone see the necessity or advisability of doing that very thing. It sometimes takes a lot of looking up of unfamiliar words to fathom the meaning of a definition. One of the examples that I have in mind illustrative of this is a definition in one of the encyclopedic dictionaries of a family of crustaceans, which definition is as follows:

"A genus of siphonostemous copepods with bodies cyclopiform and more or less clipeate and with styliform mandibles in a suctorial rostrum."

Any person not familiar with the nomeclature of the particular branch of natural history involved would have to look up the meaning of most of the words comprising the definition and then in many instances would have to follow out other references which would be needed to give an adequate interpretation to the sentence. Yet there are boys, and some men too, who think that when they can glibly give the book definition or statement of a physical fact in technical language they have done all that is necessary in the mastery of the subject.

Several years ago, in order to test this very point, I gave to a freshman class a list of technical words, used in the text-books which they were studying and asked them to give definitions in their own words. These boys had a minimum of one year in a high school and many of them had full high-school certificates. Some of the definitions are given herewith as examples of how bad the raw material may be even when it is fully certified by supposedly competent authorities:

Supernatant:
"The state of being abnormal."
"The fineness of the mixture."
"A certain point of heating not done by nature."
"A liquid which has no particular value."
"A reserve heat."
"Not permanent."
"The process whereby substances mix with one another."
"More than can be held."
"Strongly heated."
"Substances that have absorbed too much water."

Solvent:
"Anything that is soluble."
"To preserve or keep a thing."
"Any article that can be decomposed by means of a liquid."
"A substance that forms a change in a liquid to produce another product."

Buoyant:
"A liquid moving upward and downward."
"The amount which is left over."
"Having a tendency to shift."

Viscid:
"Sour."
"A liquid that is able to be seen through."
"A turbid liquid."
"Cloudy."
"A colorless liquid."
"Not altogether clear."
"Not very agreeable, as a viscid odor and taste."
"Brilliantly clear, as alcohol."
"A liquid that flows easy."

Disintegrate:
"To place between the molecules of a substance."
"Mixing two or more powders."
"To mix with."
"To clear or make transparent."
"To taire (sic) a vessel."
"The separation of one substance from another substance."
"To take one substance away from another."
"Reducing to a paste."
"To dig out."
"The process of separating large and fine particles."
"To separate particles."

Subside:
"The under side."
"A change in a liquid during boiling."
"Ceasing to grow less."
"The coating of a substance in a container."
"To give way or surrender."
"To allow."

Instances might be multiplied like those quoted but enough have been given to illustrate the deplorable condition of our present preliminary educational schools. The words quoted above, with one or two exceptions, are such as are used daily in current literature.

To further illustrate that it is the system and the habit of mind that are at fault and that the labor of teaching is rendered doubly difficult when dealing with raw material of that type, the following definitions are culled from papers submitted by the same class one month later, after having been lectured to and quizzed upon the subject.

The question in this instance was the Purity Rubric or rather the definition of it. The vagueness of the impression made, as I say, after repeated efforts to explain the subject, is well illustrated by the following few, which of course represent less than 10 percent of the class but which are enough to make a conscientious teacher sick at heart.

"Purity Rubric is the doses in the U. S. P. of different ingredients and it explains the color of different preparations."
"Purity Rubric is the language in general used by the people of a country."
"Purity Rubric is the sterilization of the drug."
"Purity Rubric is a drug obtained from the mineral kingdom. It is a very poisonous drug."
"Purity Rubric is pure red."
One student calls it a purified rubric.
"Purity Rubric is that plant that has been purified so it could be used as a medicine, all waste being taken out and absorbed, cleaned and ready for use for the pharmacist. It sometimes occurs as a powder or as whole, red color, but somewhat slight odor. It is used as a medicine in some cases prescribed by the doctor."
"Purity Rubric is the percentage of the purity of a substance in the U. S. P., and this substance when manufactured must always contain this amount or a fine of $57 will be imposed."
"Purity Rubric tells what the color of the pure drug should be and whether it is poisonous."
"Purity Rubric is the purity of strength."
"Purity Rubric is the amount of material left after the material was examined and all the impurities taken out. The remainder is called the purity rubucant."

Another point illustrative of the same unfit condition of many of the students to hold certificates from the preliminary schools is the frequency with which words that occur in the question are misspelled in the answer. The teaching of spelling seems to be a lost art in the schools at present.

When it comes to arithmetic conditions are even worse than those just

exemplified. Students who come from high schools are frequently proficient in algebra and geometry but the rule of three or simple proportion and percentage are wrapped in obscurity so far as their knowledge, or practical application of them is concerned. Problems in specific gravity might as well be given in Sanskrit, for the answer is often given in terms which indicate that the constant has either been determined in interstellar space or at a point about the earth's center. It is so difficult to teach pupils that the specific gravities of all official liquids and solids range between about 0.6 and 14.0.

I am firmly of the opinion that owing to some vital defect in our present system of preliminary education a large number (not a majority, of course), of holders of certificates entitling them to study pharmacy, by reason of their preliminary qualifications, are far inferior to many of the applicants who have struggled to educate themselves but who are debarred on account of their inability to pass the examinations which are provided for such applicants.

Our present day systems, both in preliminary and in professional work, place too much reliance upon certificates of competency and upon examinations. The woods are full of examiners who could not pass their own examinations (or others of equal severity) if put to the test, and it is time that some common sense provision is made making allowance for the man who is qualified in the essentials, i. e., the three R's and common sense, but is debarred because he cannot correctly parse a sentence from Milton's" Paradise Lost," according to the system of some particular grammarian, or give the chronological succession of the rulers of England, or give a synopsis of some classic (?) which nobody reads except for the purpose of boning up for some examination. The world is full of holders of certificates, diplomas and degrees of all kinds who are not educated anywhere near to the requirements of those certificates, diplomas and degrees and it is time to realize that true education can lie outside of all these external and frequently misleading credentials.

LEGISLATION RELATING TO PRELIMINARY EDUCATION FOR PHARMACY LICENSURE.

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Some laws have been enacted making certain preliminary educational qualifications compulsory for those who enter pharmacy schools or engage in the business of pharmacy. The tendency in several States at the present time is to amend pharmacy laws or school codes and provide such preliminary requirement for pharmacy licensure.

No one having experience in examining persons who apply to the boards of pharmacy for registration will deny that the deficiency exhibited in the work of many applicants is due largely to lack of proper preliminary training. The truth is oft unpleasant, but that jurist who declared recently that druggists are

"men of no great learning," would find his statement justified by the work of the average pharmacy board applicant.

It is not intended to condemn the efforts which have or may be made to correct this condition through legislation. The enactment of laws of this kind is highly commendable and essential, if pharmacy is ever to occupy a proper place among the professions. The sooner all the States have such laws will the stigma of "unlearned" be removed.

Neither shall a review of existing laws on the subject be attempted. However, a rather short experience with the workings of one of these laws leads to some suggestions, which may be of more or less value to those upon whom the duty falls of framing proposed bills establishing a preliminary educational requirement for pharmacy.

The more important provisions should include a progressive requirement, fixing the responsibility for entry into apprenticeship, and safeguarding the rights of persons who have already engaged themselves in learning the drug business. Power should be given those enforcing the law to fix the standard for preliminary education and advance the same, as the status of pharmacy and public educational facilities may warrant.

All who are employed in learning the drug business and as yet unlicensed, should be exempted in the statute from the application of preliminary requirements adopted subsequent to their employment, thereby being allowed to qualify irrespective of these measures.

Some legislation now in effect fixes a completed first year high school course or equivalent education as the standard. While this is now deemed to be adequate by many it would inure to the progress of pharmacy, if a specific minimum requirement were avoided and power to establish one and advance it, without further enactment, duly granted the proper authorities.

The entry into pharmacy of unqualified persons should also be controlled. All who take up the study of pharmacy either in schools or stores should be required to first register with the board of pharmacy. A certificate representing this registration should be granted upon producing satisfactory evidence of having the preliminary education required for ultimate licensure to practice pharmacy, and entitle the holder thereof to be admitted to a school of pharmacy or employed as an apprentice in a drug store.

These laws should provide a penalty in the form of a fine to be imposed upon the person who admits to a school of pharmacy or employs in a drug store, with the intention of teaching them the drug business, any person who does not hold a board certificate entitling them to such privileges.

Thus the responsibility for the entry into pharmacy of properly qualified persons will be placed where it rightfully belongs. Those who now neglect or are indifferent about the matter, will be compelled to inform prospective drug clerks of the requirements which must be met to obtain certificates as legally qualified pharmacists, thereby protecting the interests of both parties and that of pharmacy as well.

EFFECT OF THE FEDERAL FOOD AND DRUGS ACT ON THE WHOLESALE DRUG BUSINESS.

JOHN THOMPSON, PITTSBURGH, PA.

This paper is intended to convey some idea of the effect of the drugs act in general. I might cite cases where the new law had no effect except to compel the jobber to change his labels and conform to certain rulings, causing no changes to speak of in his methods of buying and selecting goods. I might also bring to your attention cases where the law caused an entire change of policy, just as in the case of retailers when narcotic laws are passed in the several states. The effect on some druggists is very great, compelling them to give up the traffic in the drugs affected by the legislation, but causing no inconvenience whatever to the great majority who refrain from the narcotic business from principle.

I think I am on fairly safe ground when I state that the greater portion of the wholesale druggists of the United States were conducting their business on honest lines and doing their best to supply pure drugs to the trade before the law of June 30, 1906, was made. But it must be admitted that much adulteration was practiced and that many impure drugs were marketed both through the well intentioned jobbers and those who make it a business to offer cheap goods without regard or care as to the quality.

The Food and Drugs Act has caused both the honest and the dishonest dealer to be more careful, especially the latter, with the result that the public is assured better and purer articles in oils and other crude drugs than they were before.

I will not attempt to detail the many changes that have taken place in the drug market, but will bring to your attention a few price advances to show that the drugs act has had its effect not only on the wholesaler, but the retailer, and the public as well, these advances being a pretty sure sign that the quality of the items mentioned has been improved. In 1905 asafoetida was quoted at 22 cents a pound. It is now about $1.25, or over five hundred percent higher, the deduction being that formerly it was 75 or 80 percent not asafoetida. The actual cost of producing it has not largely advanced, and the demand is no greater than in 1905.

Gum tragacanth has advanced from about 80 cents to $1.10, which is not so great a difference. I believe it is not so easy to adulterate tragacanth in the flake, which may account for its near purity of old.

Spanish saffron has jumped from around $9.00 to $13.00 or $14.00 and it is most strange that the American flower has dropped from $1.50 per pound to about half that amount. It looks as though there was no demand now for the home article as an adulterant and therefore not much sale for it.

Russian cantharides has advanced about 50%, manna 60 or 75%, and several other drugs in proportion.

The oil market is the most affected, the improvement in quality being very great. Oil of bitter almonds is 50% better, according to the price lists; oil

of anise 25%; cassia 50%; cubeb about 300%; erigeron 200%; fennel 25%; lavender flowers 80%; orange, both sweet and bitter, 25%; pennyroyal 90%; pimento 25%; rose geranium 100% and savin 100%.

On the other hand, oil of tansy has declined, but it is the only example I could find of a decided decline in price. Cod liver oil has declined greatly since 1905, but this is one of the drugs which, I believe, has never been much adulterated, the decline being due to lessened demand and greater production.

The law has affected sweet oil in the ruling that none but olive oil can be so labeled. This caused the wholesalers a lot of trouble when the druggist ordered "cheap sweet oil for external use" and got "cotton seed oil." He often raised a howl, with seeming cause.

The one feature of the law which affected the wholesaler more than any one else was its stipulations as to labeling. The label makers of the country got a good many thousands of dollars' extra business, making labels to conform to the rulings, and they made no fuss about it.

The wholesalers accepted the provisions of the law and, so far as I am informed, they believe it has made conditions better for the business, or at any rate has placed the manufacturing and wholesale drug business on a higher plane and has without question been a great benefit to the public at large. Our respected Congress probably had the public in mind when it passed the law, and the wholesale druggists, like most business men, are willing to accept and conform to any regulation that will tend to the betterment of the nation.

The law has had one very good effect on the wholesale business: it has made it much easier to buy pure drugs. Formerly many samples had to be rejected, and even large shipments had to be returned because they did not conform to the U. S. P. standard or to the standard made by the purchaser. Now the importers and manufacturers are more particular, and it is seldom that goods are received which do not meet the requirements.

The responsibility of the wholesaler is great, however, for he must know that his drugs are pure and is compelled to use every care and precaution in securing his supplies.

A MISGUIDED SWINDLER.

An enterprising swindler in England has recently been arrested for selling dried peas as "Little Liver Pills." They were sold on the assurance that they were "excellent medicine." Of course, dried peas are not an "excellent medicine" neither will they cure "liver trouble," but the same may be said of the many "liver pills" which contain drugs and are sold under claims even more fraudulent. The British swindler should have been better informed. When he desires to sell "liver pills" he should put some drugs in them—poisonous or otherwise, the kind doesn't matter. Then he can lie about his product to his heart's content and he will be immune from arrest. In fact, if he can sell enough of them he may look forward to a peerage. In Great Britain, as in the United States, it is not the mere act of swindling, but the method, that proves dangerous.—*Journ. A. M. A.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixtieth Annual Convention

OIL OF EUCALYPTUS GLOBULUS AND THE SOLUBILITY TEST.

EDWARD G. BINZ, LOS ANGELES, CALIF.

Eucalyptus globulus is the only variety of the eucalyptus growing in the State of California in quantities sufficient to distill oil from. This being a fact, all eucalyptus oil distilled in the State of California must be a true oil of Eucalyptus glob.

I have made a particular effort to get oils of eucalyptus that have been distilled from various parts of the state, and have carefully applied the 70% alcohol solubility test, but have found none that will form a clear solution with three volumes of 70% alcohol U. S. P.

The oil will not form clear solution with three volumes, either in its crude state or after it has been refined.

I have tried fractional distillation, to determine which fractions are and which are not soluble in 70% alcohol. The distilling was carried on in 10% fractions, taking a small portion from each 10% fraction. I find that the first six fractions will not form a clear solution, and that the 7th, 8th, 9th and 10th fractions will form clear solutions.

Thus it can be seen that one can make an oil of the eucalyptus glob. that will stand the solubility test, providing he is willing to waste 60% of his product, which surely would not be a profitable undertaking.

The oil of California Eucalyptus Globulus, when carefully distilled, will stand every test of the Pharmacopoeia with the one exception of the solubility test.

Eucalyptol content appears to me to be the most important matter in any eucalyptus oil. The globulus oil will at all times show a eucalyptol content as high as 60% and 70%, which is above the U. S. P. requirements.

I hardly think that the solubility test has any advantage in enabling one in determining the eucalyptol content, as the fractions that do not stand the solubility test contain the larger portions of the eucalyptol in those that I have taken, yet the oils we have in this market coming from Australia will stand the 70% alcohol test when they contain just enough eucalyptol to pass the U. S. P. requirements.

Oils of eucalyptus respond differently to the 70% alcohol test as to the variety from which they are obtained, some being soluble in one and one half volumes, others in 2 volumes and 3 volumes. It hardly seems fair to California if this 70% test must be adhered to.

I submit herewith samples of oil of eucalyptus. Sample No. 1 is an Australian

oil of eucalyptus, and the one generally sold by the jobber. This oil has a faint citronella-like odor, and is a mixed oil of eucalyptus.

Sample No. 2 is an oil taken from an original package and is labeled eucalyptus globulus. This has an odor resembling that of campho-phenique, an odor that is not found in the globulus oil.

Sample No. 3 is a first distilled oil of the Eucalyptus glob, and one in which the aldehydes predominate. These aldehydes are present always in the globulus oils, by which they are very easily distinguished.

Sample No. 4 is a triple-distilled oil and highly refined, has the aldehydes extracted therefrom, and is a true oil of the California Eucalyptus globulus.

I have yet to find any authority either in a commercial way or from the Australian government but that readily admits that the amount of true Eucalyptus globulus distilled in Australia is so very small that there is great doubt whether any of it ever finds its way to this market.

If we are to conform to the 70% solubility test, then California will have to leave the market to the foreign oil.

It is admitted that the foreign oils will conform to the U. S. P. requirements, but nature does not in the Eucalyptus globulus, produce an oil that will form a clear solution with the 3 volumes of 70% alcohol.

AMERICAN VERSUS EUROPEAN TRAINING IN MEDICINE.

The American doctors still throng the schools of Europe. Many of them imbibe little beyond floods of German beer and a snobbish contempt for their own country. Many go over simply for the *eclat* that is supposed to attach to the man who has studied abroad. Some others find in the methods and men of the Old World much that is really valuable, and some, we hope, also learn to look with pleasure on the achievements of their own countrymen. But, taken all in all, we have more than a suspicion, in truth a deep impression, that nine out of ten of these medical votaries of Europe would learn very much more of the things that would make them better doctors right here in America.

Let us summarize the matter by saying that the doctor should go to Europe when he has learned all that America has to teach him. There is not in all the wide areas between Queenstown and the Urals a therapeutist whose teachings are so much superior to ours as to justify the expense of a steerage ticket. There are some specialists who are allowed preeminence because they are "foreign." There is not a department of medicine in which American instructors may not be found equal or even superior, in the training of English-speaking men, to the best abroad. Nine-tenths of the money spent on European "study" by medical men is wasted—or should be charged to advertising account.—*Clinical Medicine.*

Section on Commercial Interests

Papers Presented at the Sixtieth Annual Convention

SOME EVERY-DAY PROBLEMS.

FRANK E. MORTENSON, PH. G., PUEBLO, COLO.

Commercial and practical pharmacy covers such a large scope as to give the writer a great variety of subjects to discuss. In my remarks I will endeavor to dwell largely on matters which seem to me most important to the retail druggist.

A constant evolution takes place in pharmacy as well as in other lines of business and professions. There seems, however, to be a greater feeling of unrest and dissatisfaction among men engaged in the drug business than in other walks of life, and why is it? And why do men engaged in pharmacy not go into other lines of business? Perhaps there are many reasons for the existence of such conditions, and many reasons why men continue in the same line of business. In the first place, many pharmacists began their vocation while mere boys, and not all have the same motive for commencing such a career. I believe a great many have begun their drug store life because of a chance to make a little spending money by working evenings, Saturdays and during vacations, while others have been deluded into the belief that it is an easy, dignified way of making a fortune without much work. The latter class of course are the most disappointed. The young man does not realize this until his mind has become so thoroughly saturated with theoretical pharmacy and his time so completely taken up that he cannot think about any other way of making a living, and eventually concludes that he is unfit for anything else and perhaps spends his entire life in a pharmacy.

Pharmacy *should* be an attractive, dignified profession, but as conditions are today it is a great disappointment to most of our retail brothers and we, ourselves, are largely to blame; not directly, but we are to blame for not standing up for our rights and defending ourselves against unjust attacks by different interests and unscrupulous methods used by other business houses as advertising schemes.

In the first place, we should be active in association work, local, state and national, and demand recognition in political affairs. But we are too afraid of expressing our opinions for fear some one won't believe just as we do, and that we shall thereby lose a customer. Again, we think it is a sin to give an hour to an association meeting. Consequently we have submitted to dictation by outsiders until a great many people have been led to believe that druggists are all bad. No doubt some are—so are some preachers, some doctors, some

deacons, and even some "school ma'ams"— but we should not be asked to bear the same reputation that applies to the occasional black sheep in our midst.

With an army of druggists, such as we have in the United States, we could secure almost anything reasonable in the way of legislation and protection if we were willing to fight for it. I believe it is unjust and unfair for drygoods stores to sell for advertising purposes at cost or below, articles that belong to the druggist, at the same time making people think that the druggist is a hold-up. The regular price of most such articles gives the druggist only a fair profit. Not long ago a grocery man said to me, "he did not see why he could not sell patent medicines as well as a druggist." I told him that I did not agree with him, that a druggist certainly knew something about even a proprietary remedy, but I thought that a druggist could sell tea and coffee just as scientifically as a man behind the grocery counter, and it might be quite a drawing card to sell these staple articles at cost. He had nothing more to say on the subject. About all they want to leave to the druggist is the violent poisons and the high priced and rare drugs.

Another great drawback with us today is the misunderstanding and cold relationship existing between physicians and pharmacists. Physicians naturally object to the manufacture and sale of proprietary remedies, and of course, are also opposed to counter prescribing. But what are we going to do about it? In our present condition, the prescription business is worth mighty little to the average druggist, and is perhaps a losing department, considering the amount invested, the valuable space taken up, and the keen attention required to conduct this department. Many physicians prescribe high priced specialties and proprietaries for which the druggist has to pay exorbitant prices and many times he has to buy a pound to use an ounce and very often the balance is left on his hands as a souvenir. This, I believe, leads to counter prescribing.

Then we have the dispensing doctor to contend with. I don't believe physicians are any more capable of compounding and dispensing than druggists are of diagnosing and prescribing. The busy physician cannot give the study and attention necessary in the manufacture of medicines nor can he be a "good mixer" in this sense of the word. Compounding a prescription might be compared with baking a cake—proper manipulation is as essential as the right ingredients and proportions. What would a castor oil emulsion look like if the proper amounts were put in the bottle with a "shake label"? Where would be the beautiful color and corresponding composition that belongs to Basham's Mixture if the ingredients were not added in their right order?

The care in the handling of drugs is also very important. Many preparations have to be kept in amber-colored bottles, others in glass-stoppered containers, and still others in completely filled bottles—while temperature must also be considered. All these things the pharmacist should be thoroughly familiar with, while the doctor has something else to think about. I am in no way blaming the doctors for these conditions—we have not convinced them that the pharmacy is the proper place for all medicines to be prepared. Neither have we made any defense to the attacks made on us by yellow journals.

In conclusion, I wish to make an appeal to all druggists to aid in a fight for a law confining the sale of all remedial agents and poisons to registered pharma-

cists; and let us also make a greater effort to convince the physician that medicines should be prepared and dispensed in a pharmacy, and that it is far better for him to prescribe U. S. P. and N. F. preparations than nostrums of unknown composition sold at exorbitant prices.

We are continually clamoring for increased educational requirements and higher standards among ourselves. I am thoroughly in accord with this idea. It has been my wish for many years to be able some day to run an ethical pharmacy, but at the same time I have no notion of making a failure in business while trying to accomplish my desire. The druggist who has been financially successful, is the one who is keen in merchandising, regardless of his pharmaceutical knowledge.

DISCUSSION.

Mr. Charles Holzhauer, of New Jersey, began by saying that he had come to the Section session this afternoon in the hope of learning something, but found that each one had a different idea about things. One thing that he was sure of was, that the drug trade of the country must pay more attention to the commercial end of the business, or "we won't be druggists very much longer." He thought one great trouble was that the average druggist was trying to follow somebody else, instead of working out his own salvation. In his opinion, it would be worse than folly for the majority of druggists to throw aside the commercial end of their business and endeavor to run a strictly ethical pharmacy. He did not wish to be understood as being opposed to ethical pharmacy, for he believed in it most thoroughly; but he had tried the experiment himself, and had learned that there was not enough in a strictly ethical pharmacy to provide a living.

Continuing, Mr. Holzhauer said he thought the average druggist—not excepting himself—was too narrow in his views. Everything he did was on a small scale, and the majority of his sales were for five or ten cents, and even when he put up a prescription everything he handled was small. Then if he became disconsolate and went into his back room to brood over the condition of his business, he would not be in condition to wait on the next customer.

Recurring to the remarks of Mr. Kendall, of Mississippi, in the discussion of the two papers on advertising presented earlier in the session, Mr. Holzhauer said that he had listened with interest when the gentleman had said that he advertised he was the only genuine druggist in his town. This is all right where a man could take that position, but not every man could do it. Many a druggist was so situated that he could not make such a statement and be truthful and honest. Another man would say that he would not have a soda-water fountain. Neither would he, if he made nothing out of it. He believed it was a mistake to have a soda-fountain and not do a soda business. As for himself, he would not be willing to dispense with his soda-fountain. Personally, he would prefer to do so, but it was a profitable branch of his business, and he could not afford to do without it. It was the same way with the man who said he would not sell garden-seeds. Neither did he, but if he could see a profit in it he would sell them. It was the same with paints; while he did not sell them, if he thought the business would be profitable, he would sell all the paint he could. His judgment was that no druggist should follow absolutely any other man's course of business, but should take that which he could make use of, and nothing more.

As touching the subject of cooperation, Mr. Holzhauer said that while he believed in it, it could be made a curse to the retail druggist if not properly used. For example, he thought it foolish for a man to say, "I won't do this or that until we can get all the druggists of the town to cooperate." Druggists should have the backbone to stand up for what they believed was right and proper, and when they learned to do that they would find conditions better for themselves, and their business would be immensely more profitable. His advice was for the druggist not to wait to see what his neighbor was going to do, but if he felt that he was keeping his store open three or four hours longer at night than he should do, the thing to do was to stand by his conviction and close it, and everything would come out all right. It was the same way about Sunday-closing. If he wanted to close his store on Sun-

day, let him do it. The thing for the druggist to do was to broaden out, and get away from his narrow views. As to the prescription business, Mr. Holzhauer thought that many times where the pharmacist got his own price for a prescription, all it would stand, that, considering the time required for its preparation and delivery to the customer, it was not as profitable as if the same time and attention had been bestowed upon the commercial end of his business.

Continuing, Mr. Holzhauer said that he stood for the proposition that the druggist should be the leading man in his town, instead of the "under dog" he frequently was, because he was not willing to put up a fight and take the position to which he was entitled. The average druggist was a respected man in his community, and he was entitled to take position with the best citizens. He could not do this, however, if he never left his little store, and raised his family in this atmosphere. He must get out of these narrow bounds if he expected to be a man of force in his town. In many years of personal observation, he had never known of a single druggist who had gotten rich in the drug business. Some of them were rich, it was true, but it was because they had taken advantage of their situation and had broadened out in their activities. Their retail business was simply a starting point, and they had gone on from there. He thought that this was what every druggist should strive for. The average retail druggist never thought of making an investment outside of his business—and this was all right, if all the money he had could be profitably used in his business. By all means, he said, if by carrying an increased stock he could do an increased business, that was the thing to do. He often wondered how many retail druggists owned a little stock in the bank in which they did business. This was a good asset, and it was a desirable position to be in, to be able to borrow money because of the reputation he had as a man of business affairs. The druggist often had opportunities of investment which did not come to everybody. He knew what was going on in the town, and he was in position to invest in certain legitimate enterprises, and benefit from them as other commercial men did. He thought all these things had been too much neglected in the past. This Association, he said in conclusion, had done nobly along the lines of scientific work, and he would not for a moment belittle its accomplishments; but if the commercial end of pharmacy could not be brought up to the standard of the times, the time would surely come when there would be but little use for the scientific end of pharmacy. The druggist must get in the way of doing things out of which money could be made, and be correspondingly respected in the community in which he lived.

Mr. G. C. Kendall, of Mississippi, said he thought the difference of opinion developed here as to having a soda-fountain in the drugstore was a matter of local conditions: but there could be no difference of opinion as to what department of the drug business it was where a man made his reputation, for this was behind the prescription counter. As touching the subject of cooperation, and the acknowledged desirability of being on friendly terms with physicians, he thought the man who had a reputation as a dispenser of soda-water could not expect to have the same standing with the physicians in his community as the man who had earned the reputation of being a real druggist.

Mr. Holzhauer responded that if a man was going into the soda-water business, he ought to make up his mind to be the best in the town at it—not that he should draw it himself, but that he should build up a large and profitable business in that line, and expressed the opinion that the place for the druggist was to supervise every department of his business—to see that the soda-fountain was run properly, to see that the prescription department was run correctly. Whatever avenue promised the greatest success, there he should be found.

Mr. Kendall's reply to this was, that the place of the pharmacist was not behind the soda-fountain, or even behind the prescription-case, but he should have competent help in both departments, and be at the front himself, where he could greet his customers and make friends in his business, and where he would be worth more than any employe he might have.

Mr. Kendall said that if they had more energy down South, "and one-fourth of the lack of regard for the truth that these Westerners have," they would have the greatest country on earth. Everywhere about Denver, he said, people were confronted with the sign, "Keep smiling!" He thought this would be a good idea to apply to the drug business, as an

antidote to the grouchy condition that overtook the druggist when he fell down on a sale of patent medicines.

Mr. Kendall said that in his town they had fourteen drugstores, and there were two or three leading druggists there who advertised in this way: "Come in and wait for the car." Come in and enjoy our fans." "Come in and drink from our fountain." He saw a mighty poor chance to sell a fountain syringe, or some article of toilet water or toilet goods, to the lady customer who came in with the idea of making such a purchase, with a dozen ladies from her neighborhood sitting around the proprietor's tables, "enjoying their refreshing drinks and the cool breezes from his fans," watching to see what she was going to buy. "No," said he, "she will go around to Kendall's store, where there is no one sitting at the tables and watching for material for tea-party gossip." He said he believed he sold twice as many fountain syringes as all the rest of the drugstores in his town put together, and largely for this reason. "I advocate the policy of soda-fountains," said Mr. Kendall, "for my *competitors*. It pays me for them to have them." As to the doctors, Mr. Kendall thought that the failure of cooperation was generally the fault of the druggist. He made them pay for every hypodermic tablet they got in his house. It was a matter of business to do so. With regard to counter-prescribing, he said if a man came in and said he was a little bilious and wanted a purgative, he gave him three capsules, and charged him a dime for them. If he came in for the stomach-ache, he gave him something for that. He did not class this as counter-prescribing. But if he came in and said, "I am feeling a little bad," he looked wise and said, "My friend, you don't know just exactly what this is going to result in. My advice to you is to see a physician." Nine times out of ten he will ask where he can find a good physician, and he would reply, "Just go upstairs, and any man you find in his office is all right." The result was that, instead of getting a dime out of that fellow, the doctor would get a dollar or two, and he himself would always get two prescriptions, one for a dose of calomel, 25 cents, and a tonic at 50 cents. It was good business to make 75 cents, instead of a dime, and at the same time make a friend of the doctor.

Mr. Holzhauer humorously responded to this that he had a friend once who did that same thing, and the man came back to him and said: "I want ten cents' worth of absorbent cotton." The druggist asked him if he had been to see the doctor, and he replied in the affirmative. He then asked him if the doctor had given him a prescription, and his reply was, "No, he gave me some tablets and some iodoform."

Mr. C. J. Clayton said he had been wondering how Mr. Kendall managed to "smooth it over" with the doctors when he allowed his name to appear under the advertisement of patent-medicines. In Colorado, he said, the doctors would all be down on him.

Mr. W. B. Philip remarked that the "almighty dollar" was a mighty serious proposition, and everything that could be done here to help the druggist get more of the dollars was going to help this organization. He told of a little scheme that he had hit upon, like this: He had figured out his percentage cost of doing business, approximately, and every case of goods that came into his house he had marked with a cost and selling mark. If he did not make his percentage cost of doing business on an article, where it was cut down very low, he took a blue pencil and marked heavily under the cost price, and every time one of his clerks would sell that article he knew he was losing money. He purposed to carry this a step further and use the blue-pencil scheme to show the clerk where money was being made.

Continuing, he said that the doctor proposition was a very hard one to solve. He had one doctor who, for every prescription he wrote, took a ten-cent cigar, until he was forced to cut that out. Another, whenever he got into trouble and wanted a formula, would come to him to work it out for him, and then take it over to a neighboring druggist, so that he could make it just as well. Still another never wrote a prescription on the druggist's blanks, as he seemed to feel that he was lowering himself in the druggist's eyes. This was a hard proposition, the handling of the physicians, but he hammered at it all the time, and was gradually getting more and more of that class of business. Mr. Philip said he thought that one of the best investments that a druggist could make was in the lot and building he occupied. Had he made such an investment at one time, when he started a store on a corner lot, he would have cleared $15,000 inside of five years. Since then, he had made a

number of real estate transactions, which had yielded a good profit. He told of one instance where, at one time, $5,000 was offered for a building and store, but the owner wanted $6,000, and there was no sale. Later, the party occupying the store offered $11,000 for the property, and the owner asked $15,000, and still there was no sale. Within the last two years this property was sold for $42,000. He was decidedly of the opinion that very often the best thing the druggist could do was to purchase the property in which he did business.

Mr. W. H. McCutcheon, of Oklahoma, stated some of his experiences. Shortly after starting in business he married, and he and his wife lived in the store building. She helped him in the drugstore, and he noticed that he had a phenomenal sale on rubber goods. When after a while they felt that they should have a home away from the store, he noticed that it was but a short time until he was not selling any rubber goods. At first he did not realize what the trouble was, but finally engaged the services of a young lady in the store, and the extra profit that she earned on such goods more than doubly paid her wages.

One of the features of his store was a rest-room behind the prescription case, and he advertised this to the country people adjacent to his little town, and they would come there and bring their luncheons and avail themselves of this privilege. He was satisfied that this rest-room had paid for each year's rent since it was established.

EFFICIENCY.

Ask me what's the biggest idea in business today and I'll tell you—Efficiency.

Old-time methods, antiquated business forms, have got to give way before the rapid advance of modern drug methods.

Plans and schemes that made good a year ago fail utterly today. Business is constantly changing—so also have merchandising methods got to change.

Efficiency simply means the application of right methods at right times. There is efficiency of advertising, salesmanship and business organization. The efficient business is the successful business. Efficiency is not red tape—nor is it a forty-second cousin to red tape.

Efficiency means procuring the maximum production with the minimum labor. Efficiency is the lubricant that oils the wheels of commerce—making the machine of big business run smooth and frictionless.

Efficiency means organization—a place for every one and every one in his place. Efficiency in the drug store means the development of selling, advertising and business departments, so that with the least labor and at lowest cost the most productive results are forthcoming.

"Efficiency is the higher percentage of net results."

"Efficiency is the elimination of waste."—*The New Idea.*

Section on Historical Pharmacy

Papers Presented at the Sixtieth Annual Convention

EARLY HISTORY OF PHARMACY IN KANSAS.

L. E. SAYRE, LAWRENCE, KANSAS.

Any one who is familiar with Kansas history knows that its pioneer days were in about the year 1854. The next succeeding years were struggling times for the State.

In order to obtain historical data concerning Pharmacy of this early period, it has been necessary to search the records of the Historical Society at the capital city, Topeka. In these records I find in one of the early Kansas papers an account of a physician, pharmacist, and postmaster*—Dr. Geo. A. Cutler, who was one of the noted characters. After the adjournment of the free state convention at Lawrence, Dr. Cutler was taken sick with typhoid fever and lay ill at Governor Robinson's house for some time. When he became able to travel, by aid of assistance, he arrived at Doniphan, where he was pursued by ruffians; they found him and immediately hoisted him into a wagon and started for Atchison; upon arrival there, a courier was dispatched giving information that they had captured one of the leaders of the Abolition party. He was tried for high treason before the Squire and convicted, and given his choice to hang or be taken to LeCompton, where a pro-slavery army was gathering, preparatory to being taken to Lawrence. The sick man chose hanging. After much argument and dissension it was finally decided to take him to LeCompton, where he was placed in a tent. Shortly after this he was released and fell into the hands of a good nurse at Lawrence, who brought him back, as it were, "from the grave." Dr. Cutler in this history is noted as one who took part in the daily events of the period, so full of excitement and danger as that of the early history of Kansas. He helped recruit and organize the "Ragged Regiment," which General Lane, Colonel Dickey and Judge Morris Hunt patrolled through Idaho and entered Kansas about the first of August, 1856, and by forced march arrived in Topeka in time to hear the pro-slavery patriots on the Wakarusa near Lawrence, and started at once for the seat of war, and consequently was in the various fights that followed in quick succession.

In an early paper known as the "Commonwealth," we find a medical paper, one of the earliest contributions, written by Dr. Williamson, and read before the Medical Society. In it he tells how he used to practice medicine "when men's lives were not worth much," and gives incidents encountered during the troublesome times of '61. He tells how a free state man, Dr. Eagles, was noti-

*Physicians, in the early days in Kansas, were mostly Dispensing Doctors (physicians and pharmacists combined.)

fied by border ruffians to leave the territory or suffer consequences, which meant in those days the taking of his life and the pressing or stealing of his property for the simple reason that he was not, it is stated, "all right on the goose." In the summer of 1856, it is stated the Doctor "could beat a partridge hiding in the hazelbush and save his neck." He persisted in staying, and was a very good representative of the early "eclectic." In those days, it is stated that every other man who came (in 1856) had dubbed himself "professor" or "doctor," but the personal danger attending the practice of medicine soon thinned the ranks, so that the overworked doctors who accepted the situation had no light task. The writer gives us a number of cases of hairbreadth escapes during his hazardous attempts to practice medicine. The physician, it is stated, carried his life in his hands, and when he left home in the morning his death at night would not have been a surprise.

In Gray's Doniphan County History there appears as a frontispiece the figure of a savage, in his native costume, as the original owner of Doniphan County Kansas lands; the name of this savage is not mentioned. On page 86 the following statement is made: "The proprietors of Ayer's Ague Cure at one time owned land here. In the early days before the swamps and bogs had dried up, Dr. Ayer sold enough Ague Cure to purchase many good Doniphan county farms. There is not an old settler who will not tell you that the ague was more to be dreaded than the visits of the Indians. In territorial days business centers showed their enterprise in newspaper advertising in such historic papers as the "Kansas Press," "Kansas Freeman," "Kansas Weekly Herald," "The Herald of Freedom," the "Squatter Sovereign," etc. From the columns of these publications, and others, is transcribed the following:

The "Kansas Freeman," Oct. 25th, 1855—"Medicines, wholesale and retail, just received at Commercial Headquarters: 200 doz. boxes Grafenberg vegetable pills, 30 packages health bitters, 75 doz. boxes Green Mountain ointment, 60 doz. boxes fever and ague pills, 36 doz. children's panacea, 49 doz. sarsparilla, 20 doz. pile ointment, 40 doz. uterine catholicon, 5 doz. consumptive balm, 100 doz. cough candy. Another large bill has been shipped from New York so that the millions may be furnished here."

In the "Kansas Press," May 30, 1859, a full column advertisement is occupied by the following gentlemen, for drugs and medicines: S. F. Johnson, wholesale druggist, Cor. Delaware & Main Streets, Leavenworth, at "St. Louis prices"; the Drug Market, E. E. Allen, wholesale and retail; advertisements of drugs including window glass, old whiskeys, Virginia tobacco, and stationery; Dr. G. J. Park, wholesaler and retailer of drugs, medicines, chemicals, paints, painters' materials, oils, burning fluids, varnishes and physicians' prescriptions, as well as family medicines; drugs by G. A. Eddy & Co, wholesale and retail dealers, Delaware St., between 3rd and 4th, Leavenworth City, K. T.

In the Kansas Weekly Herald, dated Oct. 13, 1854, there appeared three columns of patent medicine advertisements: Dr. Easterly's Vermifuge, ⅛ column; Dr. Hunter's German Bitters, ⅛ column; Dr. Cook's Magic Hair Oil, ⅛ column; Dr. Easterly's Extract of Iodine and Sarsaparilla, 1 column; Dr. Easterly's Fever and Ague Killer, ¼ column; Dr. Carter's Cough Balsam, ¾ column; Dr. Easterly's Pain Killer and Dr. Easterly's American Oil Liniment, ½ column;

also Dr. Baker's Specific, ⅛ column, a remedy for venereal diseases, in which the doctor states: "This invaluable remedy has saved thousands upon thousands from the hands of merciless quacks, if not from a premature grave, etc."

The "Herald of Freedom," devoted to humanity and the interests of Kansas, of July 21, 1855, contains an advertisement by L. C. Talls, M. D., in which Dr. Talls states he has purchased the medicines, fixtures, etc., belonging to the late Dr. Clark, and says he is in readiness to answer all calls in line of his profession; dated Lawrence, June 2nd, 1855.

The "Squatter Sovereign," of Atchison, April 15, 1856, contains the following advertisement: "The University's family remedies should be under the sanction as well as the authority of the seal and authority of the University field of medicine and popular knowledge, chartered by the State of Pennsylvania, Apr. 29, 1853, with a capital of $100,000, mainly for the purpose of arresting the evils of spurious and worthless nostrums, also for supplying the people with reliable remedies, whenever a competent physician cannot or will not be employed; this institution located in Philadelphia, No. 68 Arch Street, where applications for new agencies will be received, has purchased from Dr. John Rowand his celebrated "Rowand's Tonic Mixture," known for upwards of twenty-five years as the only safe and sure cure for fever, ague, etc." The advertisement continues: "Remedies for fever and ague, bowel complaints, complaints of the lungs, dyspepsia, and constipation," and an almanac is issued by this company under the authority of F. S. Robertson & Co., Miami, Saline County, Mo.

On page 56 of the "Early History of Leavenworth City and County Drug Stores:" The first drug store in the city was built and owned by Dr. Samuel Norton, who came from Weston, Mo., and who was one of the original Town Company. It was first a frame building and stood on the south side of Delaware street, just east of the corner of Second and Delaware streets, and was built late in the fall of 1854. It was afterwards removed and the two-story brick building, known as the Norton building, was erected on the same site, and is still standing. Dr. R. E. Allen, late of Liberty, Mo., built and occupied as a drug store, about the same time, a one-story frame building on the west side of Main street, north of Delaware street, opposite the Anthony buildings.

In the "Cutler's History of Kansas, 1883, occurs on page 434, among the descriptions of the manufacturing industries of the city of Leavenworth, a description of the Brown Medicine and Manufacturing Co., pharmaceutical manufacturers and perfumers, No. 113 Delaware street. This house, it is stated, is largely engaged in the manufacture of pharmacopoeial and other pharmaceutical preparations. The company was organized in 1876 and has the following officers, most of whom have been from the beginning: G. A. Eddy, president; W. B. Slosson, vice-president; J. P. Baulserman, secretary; R. J. Brown, superintendent and treasurer. The latter gentleman was very active in the American Pharmaceutical Association. The annual sales of this firm, it is stated amounted to about $75,000. Mr. William Spencer, graduate of the Philadelphia College of Pharmacy, associated with the establishment in 1884.

At the Capitol building Historical Museum there is exhibited in a show case a hand bill, reading as follows: "Prof. Miss Kate Bender can heal all sorts of

diseases, can cure blindness, fits, deafness and all such diseases, also deaf and dumbness.

Residence, 14 miles east of Independence, on the road from Independence to Osage Mission, one and one-half miles S. E. of Norehead Station.

June 18, 1872. Katie Bender."

This dodger was circulated by the notorious murderess, Kate Bender, herself. The Benders kept a road house, or feeding-place, on the main road leading from Osage Mission to the United States land office at Independence, Kansas. It is stated that the traveler lured by this advertisement, was sure to meet his death.

In the "History of Kansas," above referred to, there is a description of the Leis Chemical Co., mention of it being thus made: "This gigantic manufacturing establishment has grown to its present proportions mainly through the efforts of George Leis, who, as a druggist, commenced the manufacture of chemical preparations; for several years he continued their manufacture; on February 4, 1880, a stock company of the prominent business men of Lawrence was organized, with a capital of $50,000; its first officers were J. P. Usher, president; I. N. Van Hoesen, vice-president; George Leis, secretary and manager; H. Benson, treasurer; W. J. Leis, manufacturing and assistant manager. Patent medicines: The manufacture of patent medicines was commenced in a small way by Dr. S. O. Hymoe in 1867; according to the demand the business increased until the sales amounted to $150,000 annually. His medicines embraced ten different varieties of chemical preparations for the manufacture of which its establishment employs eight experienced hands. Hymoe's remedies through the West, it is stated, are known for their purity and efficacy. Directors: H. C. Smith, W. G. Hills, C. E. Wilmoth, and J. D. Bowersock. In the autumn of 1882 a brick laboratory four stories high, 50x85 feet was completed at the cost of $18,000, employing 55 skilled operatives—the Leis Manufacturing Co., manufacturers of Leis's standard medicines and pharmaceutical preparations, perfumery, fluid extracts, baking powder, etc.; 300,000 gross different preparations are manufactured annually. It is stated that the establishment is one of the most successful business enterprises in the state.

There is a record in 1860 that Drs. Gillihan and Packard in Iola, Kansas, emptied their medicine cases together and the result was the first drug store in that place. This passed to Gillihan & Cowan, then to J. M. Cowan & Son, then to S. Ridenour & Co., then to John Francis, then to John M. Scott, then to Campbell & Burrell.

The autobiography of Peter D. Ridenour, published in 1908, on page 269 states: "In the year 1866 my brother Samuel came out from Ohio and proposed to select a location in Southern Kansas and go into the grocery and drug business, if Mr. Baker and myself would take a half interest with him. He had been in the drug business in Ohio. The town of Iola in Allen County was selected; a small grocery store building was bought and stocked with drugs and groceries; he did the purchasing of drugs, and I bought the groceries. The firm of Ridenour-Baker Grocery Company is now one of the largest wholesale grocery stores in the middle west, located in Kansas City, Missouri."

In the Atchison Daily Free Press, May 8, 1855, I find two large advertising

cards: drugs and sundries, M. W. Horn & Co., and Buddington & Co., the latter purporting to deal, in a wholesale and retail way, in foreign and domestic drugs.

One of the earliest advertisements of the Topeka drug stores we find in the Kansas Tribune, dated Aug. 15, 1857, in which C. C. & E. P. Kellum, corner of Fifth and Kansas avenue, announce they are opening a general assortment of drugs and medicines, flavoring extracts, fancy articles; also books and stationery.

In the Leavenworth Times of April 25, 1886, there appears a cut of the large establishment of Geo. A. Eddy, wholesale druggist. Mr. Eddy commenced the drug business in Leavenworth in 1857; he employed two traveling salesmen for state work.

In the Leavenworth Directory, published in 1859-60, in the index of advertisements, the following firms appear: E. H. Anderson, G. A. Eddy & Co., Samuel Norton, J. G. Park—each of these being given a portion of a page for advertising space.

In the History of Doniphan County, published in 1868, appears the notice of August Miller, Wathena, Kan.; A. Brantana, Troy, Kan.; and H. M. Sales & Co., Doniphan, Kan.

The Kansas Herald, published at Leavenworth, June 15, 1855, contained an advertisement to the effect that Dr. Day has just received and is now opening a choice and select stock of pure drugs and chemicals, patent medicines, paints, oils.

The first medical publication in the state was published in Leavenworth as "The Leavenworth Medical Herald," by C. M. Logan, M. D., and T. Sinks, M. D., editors. Articles in this Medical Herald show that materia medica takes quite a prominent place as compared with surgery and practice. Theo. Eordorff, 409 Delaware St., Leavenworth, is stated as having one of the best known establishments in that city, and having an extensive drug house. Mr. Eordorff was originally from New York; began business in 1862, occupying a store 25x100 feet, three floors, and basement, and carrying from $40,000 to $50,000 stock, his sales amounting to $150,000 per annum. One of his leading specialties is "Corn-wart-Skin," also Medicated Malt Gin and Wahoo Bitters."

In the Cottonwood Falls, Kan., "Banner," Apr. 17, 1869, appears the advertisement of Dr. G. W. Williams, druggist—low prices, Cor. Broadway & Friend Streets, Cottonwood Falls, Kan., advertising space about one-third column.

Dr. C. E. Sapp, located in Cimarron, is advertised as being "genial in his ways, and affability," and the doctor is stated to be a "thoroughly reliable gentleman, and leads in his profession."

In the Portrait Biographical Album published in 1890, it is stated that in 1875 Mr. H. W. Spangler, who was Justice of the Peace and Notary Public of Perry, and was one of the most active members of the Methodist Episcopal Church, had accepted the principalship of the Perry schools, which position he held until 1877, when he associated himself in partnership with Dr. Surber, and they purchased the drug stock of A. F. Gratigny and operated the drug business together; after one year Mr. Spangler became sole proprietor. Mr. Spangler was subsequently secretary of the Kansas Pharmaceutical Association.

In the publication known as "The Torch," dated March 17, 1882, there is a review of the history of Cherryvale, and reference is made to the many advantages and inducements offered to persons seeking homes and investments there. The

first article refers to Richart & McDonald as possessing a roomy drug store, in which there is a glittering write-up of this firm, the author stating, after several columns, that he regrets the space will not permit the privilege of describing their new store as it deserves, and their perfect system of running their business; the establishment, it is said, "stands alone, and is as strong as the rock of Gibraltar."

In the "Jacksonian," special edition, Cimarron, Kan., Jan. 1, 1887, there appears the following: "A. E. Krum's Star Drug Store," speaking of this as being in its holiday attire; The Diamond Drug Store, R. S. Pinnegar & Co., referring to it as being a "shining sparkler of attraction and beauty"; Dr. J. W. Wade advertises as being a graduate of the Missouri Medical College of St. Louis, and the Medical Hospital of St. Joe, and the doctor is said to run a "city drug store."

In the Lawrence Gazette, July 21, is an account of the old business of B. W. Woodard, and refers to the business as a "relic of 1855"; a reprint of the business card is given, and the memories that cluster around it are as follows: It is stated that this no doubt is the oldest Kansas business card extant, representing the oldest business house in the state. It is a fair specimen of the typographical art, printed in 1855, and reads as follows: "B. W. Woodard, dealer in drugs, medicines, paints, oils, dyes, window glass ware, perfumery, etc., books, stationery, etc. Physicians, farmers, and dealers are invited to call and examine the stock and prices, which will compare favorably with those of St. Louis houses." This advertisement appeared when Lawrence was but a frontier hamlet, mainly composed of sod and shack houses, and states that the building "with open glass front, was considered a wonder of substantiality and its interior finish a triumph of ascetic taste."

Mr. Frank Faxon, the well known member of the present firm of Faxon & Gallagher, in response to the writer's request, has given an interesting account of his connection with the pioneer drug store as follows:

"I entered the employ of Mr. B. W. Woodard at Lawrence in the spring of 1863. At that time he had for his chief clerk Mr. George Leis, who was a studious fellow, and had made himself quite familiar with the U. S. Dispensatory and Parrish's Pharmacy. But he had never enjoyed the advantages of attending a pharmacy school. In August he left the employ of Mr. Woodard to accept a position as suttler's clerk in the army, which left me after little more than six months' experience head clerk and prescriptionist. I was between fifteen and sixteen years old and to me now it is a great wonder that Mr. Woodard could take such chances. I not only was trusted with the prescriptions in the day time, but slept in the store at night and was subject to calls at all hours. I think there must have been a special providence that watched over the doings of the drug clerks in those days. I suppose that I made some mistakes that I never knew of, and I know I made a few that came to my notice.

Filling a prescription one day, in which among other things, Aqua Font, was prescribed, the "n" in Font. looked like an "r," and I remember the satisfaction I felt when I saw at a glance that Aqua. Fort. was called for. It showed that I had already learned something. I prepared the prescription and used nitric acid instead of fountain water, but as you will readily guess, the contents of the bottle soon escaped and reached the ceiling without delay. While engaged in this early

prescription work I was of course closely watched by not only Mr. Woodard, but by the doctors whose prescriptions I was called upon to fill. I doubt if, at this time, there was a single graduate of pharmacy engaged in the drug business of the state of Kansas.

Two years after this time I was traveling in southern Kansas and was in a drug store when a customer called for one ounce of Tincture of Aconite Root. Upon his receiving it from the druggist he asked what the dose was, and after a slight hesitation the druggist replied, "O, about a teaspoonful." I interposed, the druggist took it all in good part, and it may be that a life was saved. At another time I entered another drug store conducted by a doctor. It was a very warm sultry day, and he was grinding something in a wedgewood mortar. He was smoking a pipe and perspiring freely. He said to me "I am having a lot of trouble today making these Dover's Powders," and no wonder, for with the Opium and Ipecac he was trying to incorporate Salt Peter Commercial, which is probably 75% Rock Salt, and on warm days a very moist article.

I think it was about 1857 that Mr. Woodward started a drug store in the Eldridge house at Lawrence and brought from New York City a man by the name of Rixer, who was a pharmacy graduate, and who displayed his diploma on the front of a very handsome prescription case in the new store. It was the first certificate of the kind that I had ever seen, and I doubt if there were a half dozen in the state of Kansas at the time.

There are many other druggists who helped to shape the career of pharmacy in the state, whose descendants have been written to for information, but unfortunately we have been unable to secure from them any replies. Perhaps at some future time more extensive and interesting data to this history may be secured.

DISCUSSION.

Prof. Sayre remarked in connection with his paper just read that the records seemed to show that Doctor Ayres was one of the first men who introduced his ague-cure into Kansas, and it was said that he had sold enough of it to buy a large area of land in the state, which he believed was still owned by his family. He said that in this history he noted what he had always said, that the doctors were responsible for a large part of the patent-medicines that were sold. The doctors that located there did not hesitate to put up patent-medicines and sell them, and in the papers of that far-away period the doctors sold under their own names various articles of this kind, and it was related of one doctor that he had emptied his medicine-chest and started a drugstore, putting up his medicines and selling them as a druggist would. Most of the doctors in those days dispensed their own remedies, and little more than that, and promulgated the idea of putting up medicines that continued to this day. In Lawrence, for example, it had not been so many years since a doctor, who had now passed away, had two or three patent medicines that he put up and sold all over the state. The doctors should not say that the druggists were the only parties responsible for the introduction of patent medicines. He really thought the physicians themselves were mostly to blame for the creation of the business.

Mr. F. W. Meissner, of Indiana, said he had not had the long experience that Prof. Sayre had had, but he could remember back a great many years, when there were very few proprietaries which were not put up by the doctors, and which did not bear the title of "Doctor So-and-So's Remedy." The doctors were largely responsible for the general sale of proprietary medicines. It had only been in the last decade or two that druggists had been putting up proprietary remedies to any extent.

Contributed and Selected

THE POTENCY OF FIRST-YEAR CULTIVATED DIGITALIS LEAVES AS INDICATED BY PHYSIOLOGICAL ASSAY.*

F. A. MILLER, B. S., AND W. F. BAKER, B. S., M. D.

The supply of many valuable medicinal plants once so abundant from natural sources is rapidly becoming or is entirely exhausted. This has been brought about by the destruction of the forests: the devotion of more and more of the waste lands to agriculture, and the destructive methods of harvesting without any thought or care to preservation. The supply was ample and little effort was made toward cultivation. Where attempts were made to introduce medicinal plants into other countries, soil and climatic conditions were often unfavorable. Many plant forms mature very slowly and several years must pass before the drug can be marketed. Possibly from this arose the belief that cultivated plants were less valuable than wild ones. The small returns to be had and the limited demand for the product has been responsible for the undevelopment of this form of industry.

In view of the advance now being made in plant culture and improvement, it is entirely within the realm of possibility that the desired constituents of drug plants can be increased and undesirable ones decreased or eliminated as is being done with many cultivated forms. In the case of some drugs, the active principles of which can be more or less closely paralleled by synthetic preparations it may be questionable as to the advisability of expending much energy upon their cultivation. The forms which contain neutral principles, glucosides, etc., cannot be so closely paralleled. In this class digitalis easily stands first. One of the factors in the way of its successful cultivation has been the belief that wild plants were more potent and this has been furthered by the Pharmacopœias of various countries. Some of these Pharmacopœias now admit cultivated leaves, but all require the second-year leaves at the time of flowering. This requirement appears to be founded more upon tradition than as a result of scientific investigation. This is a question of considerable economic importance. A larger quantity of leaves can be obtained from first-year plants, and if it can be conclusively proven that first-year leaves are as therapeutically active as the second, it will greatly shorten the period and the cost of production.

From a review of the literature, it appears that very little work has been done to determine the relative potency of first and second-year leaves.

Duffield(1) in 1869 using chemical methods found American leaves superior to English and these in turn superior to German. Edmunds(2) assayed biologically, three U. S. P. tinctures made from English leaves and three from German

*Presented to Section VIII-b International Congress of Applied Chemistry, Sept., 1912.

leaves and found them to give values of 8-18-25 and 11-20-29, respectively. Ott(6) pointed out that Bohemian leaves were much more toxic than others.

Focke(3) found cultivated leaves to be 50% less active than leaves from wild plants. Allen's English leaves are garden grown and are recognized as quite active.

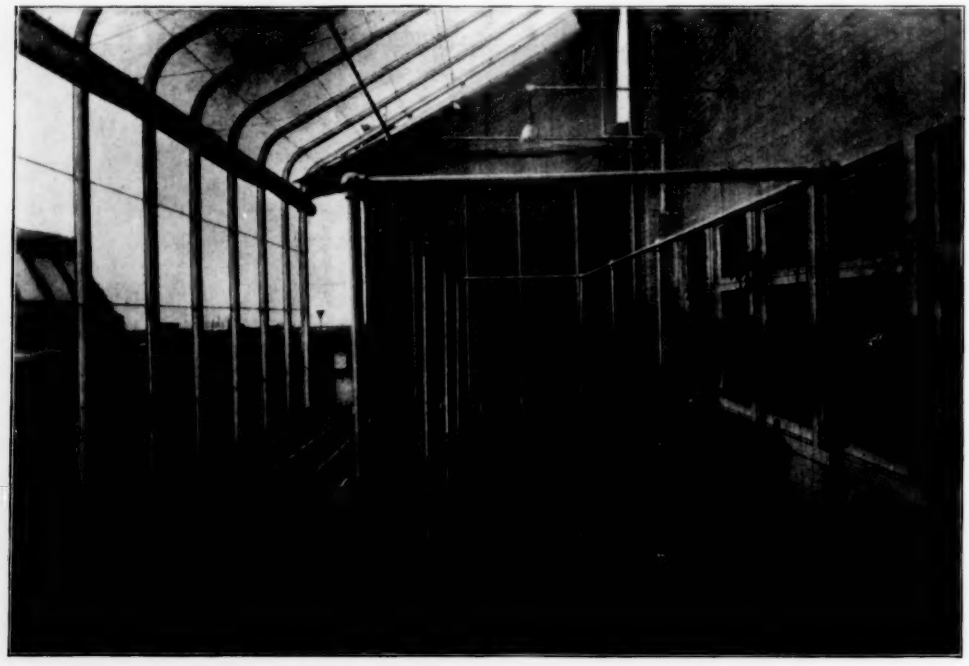
Hart(5) found first-year leaves to be 20% more toxic than second-year. Hale(4) reports some assays of first-year garden-grown leaves, one sample grown at Arlington, Va., in 1907, a second in 1909, and a third sample grown at Madison, Wis., in 1908. Each lot of leaves was reduced to a No. 60 powder and made into tincture according to the U. S. P. VIII. The M. L. D. per gram body weight by the one hour frog heart method, for Arlington, 1907, was 0.0050 cc.; for the 1909, 0.0050 cc., and for the Wisconsin, 1908, 0.0055 cc. These were

Digitalis Growing in Conservatory.

compared with a tincture made at same time from selected English leaves of second-year's growth. The M. L. D. for this was 0.0070 cc. He further reports a comparison of a sample of first year garden-grown with a sample of wild-growing second-year leaves from Seattle, Wash. The first-year leaves assayed 0.0060 and the second-year leaves 0.0085.

In view of these statements and of the approaching pharmacopœial revision it has been deemed advisable to publish the results of some assays of samples of first-year cultivated leaves and compare them with samples of selected commercial leaves. The samples tested were taken from plants grown from seed purchased of Henry A. Dreer, of Philadelphia. The botanical source is Digitalis gloxineaeflora mixed. It is a well known fact that this form is a cultivated and improved gloxinia like strain of the official Digitalis purpurea L. It is probably

one of the oldest of the cultivated varieties of the genus Digitalis and for this reason should represent the average conditions which are to be expected in cultivated forms of this group. The seeds were planted June 10, 1911, and soon after germination were transplanted to two-inch flower pots. They were retained in these until the latter part of August of the same year when they were transplanted to a bed in the conservatory maintained at this laboratory. The bed was filled with a mixture of equal parts of clay loam and decayed vegetable substance with an admixture of a small amount of sand. The plants were grown continuously in this situation without the addition of any plant food until the second of February, 1912, when the leaves were collected for testing. The plants at this time appeared as large rosettes of luxuriant leaves. They were in perfect



Tested Digitalis Plants Growing in Center Bed.

condition and represented a considerable range in leaf variations as noted in about fifty plants. These plants including the three tested have been under observation and continuous cultivation throughout their entire existence and have responded perfectly to regular methods of cultivation. The leaves which were collected for testing consisted of about an equal mixture of fully developed and half-grown leaves. These when collected were designated as samples, B-994, B-995, and B-996. They were placed in a drying oven and the temperature slowly raised to 100° C. Drying was considered complete at the end of twenty-four hours. During an interval of twelve hours the temperature was lowered to 60° C. The leaves after being dried were reduced to No. 60 powder and exhausted with 75% alcohol. At same time and by same method tinctures were made from samples of commercial leaves designated as No. 1, 2 (cultivated), and 3. The alcoholic

strength was reduced to 25% before testing. Ten cc. of these tinctures represented 1 gm. of drug. The samples were all assayed at same time by the one-hour frog heart method at 20° C.

The results were as follows:

Sample	M. L. D. per gm. body weight
B-994	0.0050 cc.
B-995	0.0040 cc.
B-996	0.0030 cc.
No. 1	0.0040 cc.
No. 2 (cultivated)	0.0030 cc.
No. 3	0.0025 cc.
Ouabain 1:10000	0.00000045 gm.

These results, although not conclusive, indicate that leaves from horticultural varieties are by no means inactive; that leaves collected prior to the flowering period may be nearly or quite as active as second-year leaves from the wild plants and that conservatory conditions do not materially lessen the activity. There also appears to be a marked variation in the activity of the individual plants. This condition if existent in commercial digitalis leaves may account in part at least for the variation that has been found to exist, both in the crude drug and its preparations. Whatever influence this individual variation may have upon the character and quality of the drug or whether it may ever be utilized in bringing about greater uniformity are matters of conjecture. This condition of variation, however, suggests a broad field for further investigations in the improvement of medicinal plants. If the active constituents of digitalis were found to be of an inherent nature a practical application of the methods of plant selection and breeding would be possible for the purpose of improvement. In this connection, it would be of great importance if the leaves of first-year plants of cultivated varieties could be utilized. These forms have already passed through the experimental stage which is always necessary to the successful introduction of any plant forms and would thus respond more readily to methods of breeding. The preliminary nature of this work, however, will not permit of a full discussion of the possibilities in drug plant improvement. It is sufficient to say that work of this nature has been undertaken in connection with the further testing of the many different species and varieties of digitalis. Seeds of these forms have been obtained not only from all the prominent sources of this country, but also from those of England, Germany and Japan. Individual plants of the various forms from these sources will be tested at different periods of growth and at different seasons. The three plants herein considered will be continued under cultivation and again tested at the time of flowering. At this time, these plants will be inbred and the seeds collected separately. The following year the progeny will be grown and tested separately for relative values and uniformity.

FROM THE DEPARTMENTS OF BOTANY AND EXPERIMENTAL MEDICINE, ELI LILLY & CO., INDIANAPOLIS, IND., JUNE, 1912.

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ELIXIR FERRI, QUININAE ET STRYCHNINAE PHOSPHATUM—RAPID FORMULA.

THOMAS LATHAM.

Soluble Ferric Phosphate	17.500 gm.
Quinine Alkaloid	8.750 gm.
Strychnine Alkaloid	0.275 gm.
Alcohol	60.000 cc.
Boiling Water	60.000 cc.
Aromatic Elixir to make	1,000.000 cc.

Dissolve the strychnine in 20 cc. of the alcohol contained in a round Berlin dish of 250 cc. capacity by boiling briskly, using a rather small Bunsen flame in order to prevent the alcohol catching fire. Be sure that the strychnine is thoroughly dissolved, and make up the volume of the alcohol lost in boiling, then add the remainder of the 60 cc. and lastly the quinine. This latter quickly dissolves with a little heat. Add the Alkaloidal solution quickly (it also must measure completely 65 cc.) to 800 cc. of aromatic elixir, and shake a little.

Raise the 60 cc. of water to boiling, being careful, if the same dish is used, to clean it from the last traces of the alkaloids with a little alcohol.

Dissolve the Ferric Phosphate in the boiling water and add the solution to 125 cc. of aromatic elixir. Add the iron solution and this latter part of the elixir, mingled suddenly, to the 800 cc. alkaloid solution, and add enough aromatic elixir to make 1000 cc. Let stand a few hours. It will scarcely need filtering.

There is no doubt that this is a much better formula than the U. S. P. Its rapidity and simplicity leave nothing to be desired.

MICROSCOPICAL ANALYSIS OF ASPIRIN AND ACETYL SALICYLIC ACID.*

WILLIAM MANSFIELD, A. M., PHAR. D., NEW YORK CITY.

Aspirin (Bayer) of Farbenfabriken von Elberfeld Company, is the copyright name of acetyl salicylic acid prepared by the process granted under the patent. Salol, the patent rights of which have run out, was replaced by Aspirin, which is supposed to be a great improvement on the older compound in that it has no deleterious action on the heart. Aspirin is widely advertised and used today as a remedy for colds, grippe, etc. During the past few months there has been much discussion concerning aspirin, it being claimed by its importers that the substitution of acetyl salicylic acid (Heyden) was a very common practice. The importers have, in fact, prosecuted and secured the conviction of one or two men. It has been reported more than once that very often a person accused of substituting, did so innocently, as he was dispensing what he thought and what he believed to be true aspirin (Bayer).

The origin of some of these samples could be questioned, they not having been procured from reliable sources. Substitution is a practice condemned by honest

*Reprinted by permission, from the Practical Druggist.

pharmacists, and that means the larger percentage of the members of the pharmaceutical profession. Pharmacists are men of right principles and high ideals, and they feel it more keenly than any one outside the profession, when one of their number is proven to be dishonest. A man cannot receive his college diploma and his State Board of Pharmacy license unless he is of good moral character, and no one will question that the colleges and State Boards of Pharmacy enforce this condition. Show the average pharmacist the right and the wrong way, and he will invariably choose the right way. If he makes mistakes, as we all do at

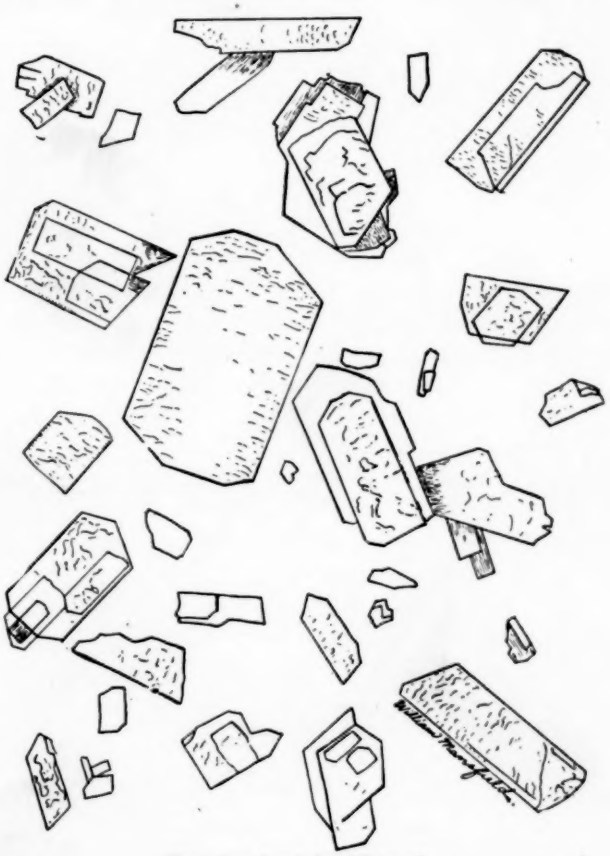

Fig. 1.—Aspirin (Bayer).

times, it is unknowingly. In several cases where acetyl salicylic acid was dispensed for aspirin, the druggist believed that aspirin was put in the prescription.

It has been generally understood that there is no known method of distinguishing Aspirin (Bayer) from acetyl salicylic acid (Heyden). After very careful investigation it seems proven that there is no chemical means of distinguishing between these two compounds. With these facts in mind, I began to study the two chemicals in question, in order to ascertain if it were not possible to differentiate between them, by means of the compound microscope. After a very careful study of several specimens of large crystals and fine powders of aspirin and acetyl salicylic acid, I found that there was a decided difference in the microscopic

structure of the two compounds. The charts which were made from authentic samples will bear out my statement. In order to be perfectly certain of the practicability of this method of analysis, samples marked a, b, c, etc., were examined, the source of which being unknown to the examiner. The result of such examinations showed in every case the true source of the powder, i. e., whether Aspirin (Bayer) or acetyl salicylic acid (Heyden).

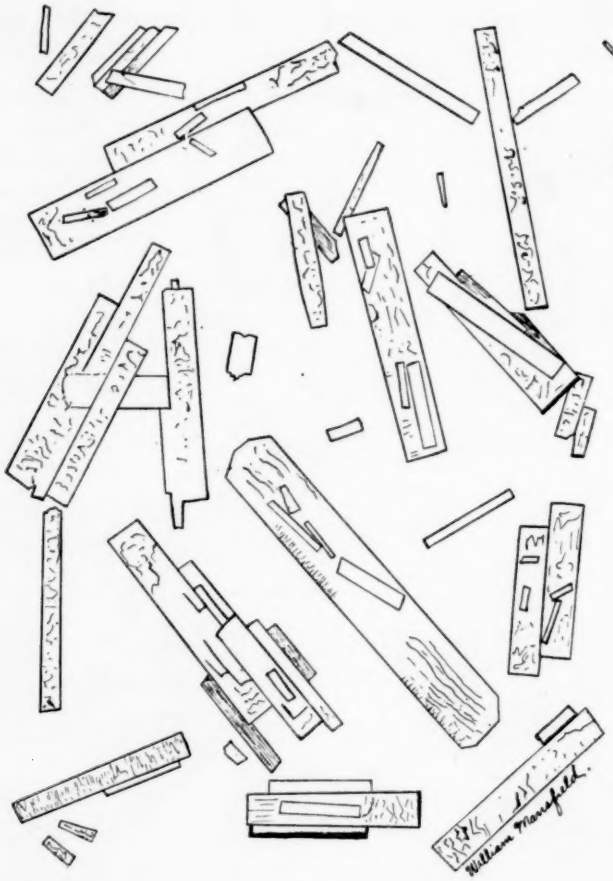

Fig. 2.—Acetyl Salicylic Acid (Heyden).

In making this test, simply add a small quantity of the crystals or powder to a clean slide, add a drop of water, mix and cover with a cover glass.

True Aspirin (Bayer) under the microscope shows numerous thin, broad crystals, two or more of which are often superimposed, lying parallel or crossing at various angles; the ends are either blunt or two or three angled; broad, irregular pieces are seen throughout the field, and many small, irregular fragments of larger crystals.

Acetyl salicylic acid (Heyden) under the microscope shows elongated, thick, narrow, rod-shaped crystals with blunt ends, occurring singly or in groups of two or more, which are frequently superimposed and usually lie parallel and in prac-

tically every group there will be crystals of variable size, some so small that they are scarcely visible under the high power. Among the perfect crystals are numerous broken fragments of large and small crystals, retaining, however, the characteristics of the larger crystals.

THE CHEMISTRY OF ASPIRIN OR ACETYLSALICYLIC ACID.[1]

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

The flowers of *Spiraea Ulmaria L.*, Meadow Sweet, or Queen of the Meadow, which were formerly official in the French Codex, 1884, and which as Flos Spiraeae are still official in the fourth edition of the Swiss Pharmacopoeia, contain methyl salicylate, and used to be the source of salicylic acid, which was isolated, from the flowers, by Löwig in 1839.

Acidum Spiricum is even today a synonym for salicylic acid, and *Spirin*, the active principle of *Spiraea*, denotes the same.

The prefix "A" in Aspirin stands for "Acetyl" and the meaning of the coined word "Aspirin" is consequently "*Acetylsalicylic Acid.*"

The author cannot help but admit that the short and euphonious word "Aspirin" is coined in a very clever and scientific way.

That this name is very valuable as a trademark can be appreciated. The word Aspirin has been registered as a trademark in Germany as Warenzeichen No. 36,433, in Austria, Wortmarke No. 1899/399, and in the United States as Trademark No. 32,805.

The owners of this trademark are the manufacturers Farbenfabriken vorm. (formerly) Friedr. Bayer & Co., Elberfeld, Germany, and in the United States, The Farbenfabriken of Elberfeld Co., New York City.

In 1853 *Gerhardt*[2] was the first to prepare this chemical from acetyl chloride and sodium salicylate, and named same "Anhydrous Salicylic-Acetic Acid (wasserfreie Salicylsäure—Essigsäure.) Although he did not give any further details of the constitution of the new substance, he was of the opinion that it was an anhydride of the two acids. In 1859 *von Gilm*[3] reported the discovery of a crystalline substance from chloracetyl and salicylic acid, and named the same "Acetilized Salicylic Acid" (acetylierte Salicylsäure).

In 1869 Kraut[4] determined the constitution of the chemical and named it "Acetylsalicylic Acid" (Acetylosalicylsaure).

On December 22, 1898, Newton took out an English patent on the preparation of acetylsalicylic acid. In 1900 Hoffman, of the Farbenfabriken Elberfeld obtained a patent "for a medicinal body whose trade name is aspirin, a product of coaltar, otherwise known as acetylsalicylic acid."

Hoffman discovered a waterless process by which a pure chemical was obtained. Although impure acetylsalicylic acid had been known long ago, Hoff-

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[1] Reprinted from the Practical Druggist, Dec., 1912.

[2] Gerhardt: Untersuchungen über die wasserfrien Säuren. Ann-der Chemie 87, 162 (1853).

[3] von Gilm: Acetylderivate der Phloretin-und Salicylsäuren. Ibid 112, 180 (1859).

[4] Kraut: Uber Salicylverbindungen. Ibid 150, 9 (1869).

man was the first to prepare and patent the pure chemical and his patent which has been contested several times, has been upheld by the courts. Since then aspirin or acetylsalicylic acid has become a very valuable remedy in therapeutics and is used all over the world.

Acetylsalicylic acid is officially recognized in the following pharmacopœias and standard works under the title:

Acidum Acetylosalicylicum: Pharmacopœia Helvetica IV, 1908; Danica VII 1907; Svecica (Swedish) IX, 1908; Hungarica III, 1909; Deutsches Arzneibuch V, 1910.

Acidum Acetylsalicylicum: Codex Medicamentarius Gallicus (French) V, 1908.

Acidum Salaceticum: British Pharmaceutical Codex I, 1907.

Acidum Acetyl—Salicylicum: British Pharmaceutical Codex, II, 1911.

Besides the titles just mentioned, acetylsalicylic acid is also known under the following names: Aspirin, Acetosalicylic Acid, Acetosalin, Acetysal, Aletodin, Salacetin, Saletin, Salicyl-Acetic Acid, Xaxa, etc.

Acetylsaicylic Acid is the acetyl derivative, or monoaceticacid ester of salicylic acid.

$$C_6H_4.\ O(CH_3CO).\ COOH,\ 1:2=C_9H_8O_4$$

It is manufactured by heating 50 parts of salicylic acid with an excess or about 75 parts of acetic anhydride for about 2 hours at 150° C. (302° F.) under a reflux condenser, or on a large scale in an autoclave.

The following reaction takes place:

$$2\left\{C_6H_4<\begin{matrix}OH\\COOH\end{matrix}\right\}+\begin{matrix}CH_3CO\\CH_3CO\end{matrix}>O$$

$$=2\left\{C_6H_4<\begin{matrix}O.CO.CH_3\\COOH\end{matrix}\right\}+H_2O$$

In order to bind the formed water, anhydrous, fused sodium acetate is added. The excess of acetic acid is removed by distillation. Upon cooling the acetylsalicylic acid separates in crystals, which are purified by crystallization from chloroform. The author might state here that there are also other processes in use to manufacture acetylsalicylic acid, which, however, we cannot describe at this time, owing to the limited space.

The Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfield, manufacture the chemical under the German Patent, D. R. P., No. 85,565, and the Farbenfabriken of Elberfeld Co., New York City under the U. S. Patent No. 644,077, of February 27, 1900, which expires in 1917. This is a so-called "product patent" in which the word "Aspirin," which is also trademarked, identifies the acetylsalicylic acid manufactured by this firm. Nobody else has the right to manufacture this chemical in the United States or to sell this chemical as "acetylsalicylic acid" or under any name whatsoever. And furthermore nobody has the right to use acetylsalicylic of anybody else's manufacture during the life of this product patent in the United States. In the opinion of the writer these points should be well borne in mind by druggists and pharmacists in order to save

serious trouble. For the benefit of those who have made objections to foreign chemicals, etc., because they were not manufactured in the United States by American workmen and American machinery, we might mention that Aspirin is manufactured at the Hudson River Aniline Color Works, Albany, N. Y., a fact which has only lately come to our attention.

It occurs in colorless small shining crystals or as a white crystalline powder. The author begs to point out that the shape of the crystals and also in the powdered condition under the microscope differs according to the process of manufacture. It should be odorless and should not be used when it has an acetic odor, which might be due to careless manufacture or to decomposition through the influence of heat or moisture. Its taste is sweet and acidulous. Melting point is about 135° C. (275° F.) The author wants to emphasize *"about,"* as much has been written on this very point.[5]

The Swiss Pharmacopœa of 1908 and the Swedish of 1908 do not give the melting point at all. The French of 1908 states 135° C. and the Danish of 1907 and the German of 1910 state *"about"* 135° C. According to the experience of the author the melting point is 135° C., after the acid has been thoroughly dried, viz., over sulphuric acid. It is also well to remember that by melting the chemical will be decomposed; so that the same sample will melt at about 125° C. at the second melting. A slight decomposition also takes place when heated to 100° C. In determining the melting point of acetylsalicylic acid or aspirin it is well to take the precaution to rapidly heat to about 125° C. and continue to gradually increase the temperature one degree per minute.

The melted acetylsalicylic acid solidifies again at about 70° C.

On ignition it should leave no residue. The German Pharmacopœia permits 0.1 percent, i. e., by igniting 1 gm., the residue should not be over 0.001 gm. practically no residue.

SOLUBILITY:	Water.	Alcohol.	Ether.	Chlorof.
Helv. IV	Sparingly	5	Freely	Freely
Fr. Cod, 1908	125	Very	Very	
N. N. R. 1915	100	Freely	Freely	
B. P. C. Cx. II	300	5	Soluble	Soluble
D. A.-B. V	300	Freely	20	

It is sparingly soluble in cold, but very soluble in hot benzol, and freely soluble with decomposition in solutions of alkalies and alkali carbonates. According to experiments of the author its solubility in chloroform is about 1 in 25 parts.

The aqueous and alcoholic solutions decompose on standing, forming salicylic and acetic acids. This decomposition takes place readily when heat is used and very rapidly in alkaline solutions.

REACTION: The aqueous solution is acid to litmus.

TESTS OF IDENTITY.

(a) The principal test of identity is based on the hydrolysis or decomposition into its constituents. Boil 0.5 gm. with 10 cc. solution of sodium hydroxide (15%) during 2 or 3 minutes, thus forming sodium salicylate and acetate. On cooling add an excess of diluted sulphuric acid which will precipitate crystals of

[5] H. Dichgans: Acidum Ocetylo-Salicylicum. Ph. Ztg., 1909, 47 Utz, Aspirin, Ph. Zhalle 43, 451 (1902). Madsen, Aspirin, Ph. Ztg. 1909, 210.

salicylic acid, which upon washing and drying should have a melting point of 157° C. An aqueous solution of these crystals assumes a violet color by the addition of ferric chloride T. S. The liquid portion which was separated from the salicylic acid crystals contains acetic acid, which is detected by its odor and also by the formation of acetic ether upon boiling with a little alcohol and concentrated sulphuric acid.

(b) Other tests of identity are as follows: A saturated cold aqueous solution is neutralized with sodium carbonate T. S. The liquid thus obtained, which, however, must not be alkaline, but can be slightly acid, by the addition of ferric chloride T. S. produces a light brown precipitate, and lead acetate T. S. produces a white precipitate. The liquid is not changed by barium nitrate T. S. or mercuric chloride T. S.

c) Upon warming about 0.25 gm. together with a little dry calcium oxide in a test tube the odor of phenol will be noticed.

TESTS OF PURITY.

(a) Absence of free salicylic acid: A cold solution of 0.1 gm. in 5 cc. alcohol and diluted with 20 cc. distilled water should not be colored violet by the addition of one drop of a diluted ferric chloride solution 1 :25. The precaution must be used to employ a fresh solution of acetylsalicylic acid, prepared cold.

(b) Absence of free acetic acid: This can readily be detected by its odor. As pointed out under "Properties," acetylsalicylic acid should be odorless.

(c) Absence of hydrochloric acid and chlorides.

(d) Absence of sulphuric acid and sulphates.

(e) Absence of heavy metals.

(f) Resinous impurities: Dissolve about 0.5 gm. in alcohol and allow to evaporate, well protected. The residue should be colorless, especially at the edges.

(g) Organic impurities: It should form clear and colorless solutions with water, alcohol, sulphuric acid and nitric acid.

(h) Absence of phenol: A solution of 0.5 gm. in 10 cc. sodium carbonate T. S. is shaken with about 5 cc. ether, and the ethereal layer is then separated. Upon evaporation only traces of residue should remain, which should be odorless.

ASSAY.

According to the Swiss Pharmacopœia: If 1 gm. is boiled for 3 minutes with 15 cc. normal sodium hydroxide volumetric solution and a few drops of phenolphthalein T. S. are added when cool, then 38.6 to 38.9 cc. of tenth-normal hydrochloric acid volumetric solution should be required for neutralization. A more correct method, in the opinion of the author, would be to make at the same time a blank titration between the alkali and the acid. The addition of salicylic acid and also the presence of not esterized molecular amounts of acetic and salicylic acid reduce the required volume of NaOH, while free acetic acid increases same.

EXPERIMENTS.

The author obtained different samples of acetylsalicylic acid in crystals and in powder, and also of aspirin, and subjected them to the above tests, and has reached the conclusion *that both are identical chemically,* although some difference

in the melting points of the examined samples of acetylsalicylic acid seem to indicate a greater or lesser degree of purity. The question has also arisen if Aspirin-Bayer contained a "tracer" in order to distinguish it from the acetylsalicylic acid of other manufacturers. Up to the present time the writer has been unable to detect such a "tracer."

INCOMPATIBILITY.

From the standpoint of a pharmacist the editor of The Practical Druggist takes this opportunity to mention the principal incompatibilities, namely, heat, moisture, alkalies and their carbonates and bicarbonates.

Acetylsalicylic acid or aspirin should be preserved in well-stoppered bottles in a dry place. The author must express his surprise that the manufacturers who in former years employed bottles have discarded the same and are now using cartons as containers.

When aspirin powders are ordered it is best to dispense these in parchment paper, so as to prevent decomposition through the influence of moisture.

PRESERVATION OF SPIRIT OF NITROUS ETHER.

C. B. JORDAN, PH. C., B. S., M. S., LAFAYETTE, IND.

I know that this is an old subject and you may feel that it has been threshed to the limit, yet there are many druggists today who do not keep this preparation under the proper conditions, either because they do not know how to do it or because they do not care to take the little time necessary to do it. Hence this discussion.

With sample No. 1 we tried to duplicate the condition found in many drug stores. The solution was kept in a pint, colorless bottle in the laboratory and opened from time to time to remove some of the solution. You will note that this solution lost 31 percent from December to February. In the case of samples Nos. 2 and 3, kept in 1-oz. full bottles sealed with sealing wax and paraffin and stored in the basement, you will note that from December to May these solutions lost but 4.4 percent. Samples Nos. 4, 5 and 6 were kept under similar conditions to those of samples Nos. 2 and 3, except that the bottles were one-half full. You will note that these samples lost from 9 to 12 percent in a little over a month. In the case of the rest of the samples, we attempted to determine whether this solution would keep better if made with stronger alcohol. It has been claimed that the small amount of water in U. S. P. alcohol causes hydrolysis and therefore more rapid decomposition of this product. The results of our experiments do not seem to bear this out. However, we have not done sufficient work with this to feel sure that we are right.

In conclusion, I would say that this solution will keep very well if put up into 1-oz. or 2-oz. bottles, the bottles filled and sealed with sealing wax or paraffin and stored in a dark, cool place. Many druggists think that this is too much work. This is a very wrong idea. I think that, if you try it, you will find that,

STUDY OF THE BEST CONDITIONS FOR KEEPING SOLUTIONS OF SPIRIT OF NITROUS ETHER.

All samples made from Smith, Kline & French concentrated tubes of ethyl nitrite.

Samples		Location	Dec. 14, 1911	Jan. 5	Jan. 10	Jan. 17	Jan. 24	Feb. 11	Feb. 22.	Loss %
1 tube made up to pint and conditions found in drug store, duplicated		Laboratory	4.2	4.13	4.04	3.9	3.69	3.37	2.89	31.0
				Feb. 15			Mar. 8		May 8	
1 oz. plain bottles sealed with sealing wax. Bottles full		Basement	3.82	3.64			3.71		3.65	4.4
1 oz. full bottles, sealed with paraffin, colorless bottles		Basement	3.83	3.89			3.79		3.65	4.4
2 oz. amber bottles, one-half full, sealed with sealing wax		Basement	3.82	....			3.46		....	9.5
2 oz. amber bottles, one-half full, sealed with sealing wax		Laboratory	3.82	....			3.39		....	11.3
2 oz. colorless bottles, one-half full, sealed with paraffin		Basement	3.82	....			3.35		....	12.3
	Bottles Alcohol									
Kept in 8 oz. bottles	Amber 99.18%	Laboratory				Feb. 22 4.48	Mar. 22 4.26	Apr. 10 4.27	May 8 3.93	12.2
	Colorless 99.8%	Laboratory				4.48	4.24	4.35	3.98	11.2
	Colorless 98.2%	Laboratory				4.36	4.39	4.21	3.87	11.2
	Amber 98.2%	Laboratory				4.36	4.22	4.24	3.89	10.8
	Colorless 95%	Laboratory				5.38	5.01	5.29	5.01	6.9

when your solution is made up, it will take but 10 or 15 minutes to store it as directed, and then you will feel reasonably sure that your product will bear careful inspection and that your customers receive what they pay for.

The fact that many doctors do not prescribe spirit of nitrous ether today because they feel that they cannot get a standard preparation, casts a reflection upon the ability and carefulness of the druggist. I believe that the druggist will be more than repaid for the little time he spends in taking precautions to keep his stock under the conditions necessary to insure the best possible preparation, and perhaps in no case are precautions more necessary than they are in the keeping of spirit of nitrous ether.

WHAT IS MEANT BY DRUG STANDARDIZATION?*

F. E. STEWART, PH. G., M. D., PHILADELPHIA, PA.

A visiting physician of one of the large Philadelphia hospitals called me up by 'phone for information regarding the failure of fluidextract of apocynum to relieve dropsy in three patients under his care. Finding that he did not know whether or not the fluidextract had been standardized I suggested the use of a standard preparation. Three or four days afterward my medical friend again called me up to report that the standardized fluidextract procured at my suggestion was promptly effectual, and said, "If standardization means so much for other drugs it is about time for the medical profession to awaken to its importance."

A prominent Canadian physician to whom I was demonstrating the modern methods of drug standardization in the laboratory said, "The medical profession knows in a general way that drugs vary in strength but only few physicians are aware of the wide variations in such important drugs as digitalis, strophanthus, and apocynum demonstrated here today. We know that bicarbonate of sodium is pure and other lots are purer. This is about my limit of knowledge, but that digitalis fluidextracts on the market may vary 300 percent in active constituents, and strophanthus fluidextracts show a variation of 6000 percent is an eye-opener to me."

The importance of drug standardization is so great that all intelligent persons, laymen as well as members of the medical and pharmaceutical professions, should be informed of its value. For without this knowledge physicians do not realize the necessity of discriminating in favor of standardized products when prescribing, pharmacists do not appreciate the necessity of standardizing their products, or purchasing their supplies from manufacturing houses engaged in standard-work; and people ignorant of the fact that preparations of the same name may differ so widely as to be dangerous to life, take prescriptions to drug stores where they can get them compounded the cheapest, without regard to the character, quality and strength of the ingredients that enter into them.

One of the first things of importance to consider in drug standardization is nomenclature. To every drug a name must be given by which it may be in-

*Read before the National Dental Association, Washington, D. C., Sept., 1912.

variably known and dealt in. The Latin language is generally employed because it is a dead language and is not liable to change, as in the case of a living language.

The name adopted must belong to the common language of science and not be commercially controlled. So-called trade-mark names or trade names do not meet the requirements of science. If the product is not provided with a scientific name proper standardization demands that the scientific societies should name it, or the government might well do so in connection with the enforcement of the pure food and drugs law.

As for the trade-names, text books are adopting them as general appellations or synonyms without protest from the manufacturers, who, therefore, cannot justly complain if competitors adopt them for describing identical products.

Botanical standardization is absolutely necessary in establishing the identity of vegetable drugs. *Capsicum fastigiatum* is the botanical name for the variety of capsicum designated by the U. S. Pharmacopoeia. Capsicum indicates the genus, fastigiatum the species to which the plant belongs. In relation to medicinal chemicals the U. S. P. gives in the "purity rubric" the amount of permissible inocuous impurities in each case. More than this amount the substance must not contain to comply with the U. S. P. standard.

Preparations of chemical drugs are standardized by chemical assay. The same applies to preparations of vegetable drugs containing active principles susceptible to assay chemically.

But there are a number of important preparations of drugs which cannot be satisfactorily standardized in this manner. I refer to the preparations of digitalis, acontie, cannabis indica, convallaria, ergot, gelseminum, lobelia, squill, strophanthus, and veratrum. These preparations are standardized physiologically by tests on animals.

Physiological or pharmacodynamic standardization is likewise employed for standardization of the adrenal glands, thyroid glands, etc.

Antitoxin and curative sera are also standardized physiologically, bacterins (bacterial vaccines) are standardized by bacterial count. The strength of old tuberculin is approximately determined by clinical tests and the same applies to small pox vaccine, while the newer tuberculin, "T. R." and "B. E." are standardized by determining the content in solid substance.

The Food and Drugs Act of June 30, 1906, made the United States Pharmacopoeia and the National Formulary official standards for interstate commerce in drugs and medicines. Most of the states have enacted similar legislation. Consequently drugs and preparations sold under the U. S. P. and N. F. names, must be made in accordance with the standards laid down by these authorities or they are misbranded and liable to seizure by the government. Manufacturers and dealers who do not follow these standards are amenable to the law.

The national law and the laws of most of the states, permit the sale of products differing from these standards if the differences are plainly stated on the labels. Some of the state laws are more strict and permit no deviation.

By way of illustration let us consider the method of physiologically standardizing fluidextract of apocynum. Apocynum belongs to the group of so-called heart tonics of which digitalis is the chief exponent. I have two reasons for consider-

ing apocynum first, one is, it permits a continuance of my story relating to the use of this drug in the treatment of dropsy in the clinical service of my medical friend; and the other is the opportunity of pointing out the advantage of physiologic tests for a drug not properly standardized botanically.

Fluidextract of Apocynum is the U. S. P. name for a preparation of the "dried rhizome" and roots of *Apocynum Cannabinum,* "or of closely allied species of apocynum," and is made by percolating the dried and powdered drug with a mixture of alcohol, water and glycerin. The Pharmacopoeia directs that each cubic centimeter of a fluidextract shall contain the active constituents of one gram of the drug from which it is prepared. Fluidextract of Apocynum should therefore represent the drug volume for weight. In other words, one minim (drop) should approximately represent in activity one grain of the dried and powdered drug.

Apocynum is commonly known as Canadian hemp, or black Indian hemp, and is also called incorrectly "Indian Hemp." It belongs to the Apocynaceae or dogbane family.

This remarkable family of plants consists of about 130 genera, including more than a thousand species, growing abundantly in most tropical countries, thence decreasing, rare in temperate regions. The plants are trees or erect climbing shrubs, rarely perennial herbs, and are among the handsomest, and many of them among the most fragrant in the vegetable kingdom, and are largely used for decoration. Otherwise, except for a few edible fruits, and the rubber-yielding species (African rubber is chiefly the product of this family) interest is almost entirely in the medicinal and poisonous properties.

So numerous and abundant are these plants, and so generally and intensely poisonous are they that their appearance should be noted by every one to be avoided. A botanical description will exceed our space limit.

The active constituents are glucosides, which may be encountered in any of the plant-parts, but are especially common and abundant in the bark and seeds. These are very common agents of criminal, military ordeal, and legal poisoning among savages, and accidental poisoning by them is not infroquent. Some of the most powerful arrow poisons are derived from this family.

We are in complete ignorance as to the species of *Apocynum* which should yield this drug. Up to a very recent period, five or more distinct species were included under the name *A. Cannabinum,* even in our standard botanical works, and the plants themselves are not distinguished. It is therefore impossible to ascertain which species yields the different drugs whose actions have been reported under that name. This fact doubtless explains, in great part, the conflicting testimony regarding the medicinal activity of the drug.

The drug as it appears on the market is of indefinite length, 1/8 to 1/3 inch thick, cylindrical, wrinkled, fissured, orange brown, becoming gray-brown on keeping, almost inodorous, taste starchy, afterward becoming bitter and somewhat acrid.

The active constituents are the bitter glucosides, apocynin and apocynein. Its effects are similar to digitalis (commonly called foxglove).

Apocynum is usually given in the form of fluidextract, the average dose of which is five minims.

Now it must be very apparent to any thinking person that fluidextract of apocynum when prepared from a drug not properly standardized botanically is a very uncertain preparation. As already stated, we are in complete ignorance as to the species of *Apocynum* which would yield this drug, so we are not sure when purchasing it that we have the species containing the glucosides to which its medicinal value is due. No way is provided by the Pharmacopoeia for determining whether these constituents, and how much, are present. Even though an assayed drug should be employed no directions are given to ascertain whether the finished preparation contains them in proper amount. Unless the finished fluidextract is subjected to standardization the dose of five minims may be too large, or, on the other hand, the preparation inert.

Is there any wonder under such circumstances that the hospital physician who called me up did not obtain satisfactory results from fluidextract of apocynum in the treatment of dropsy?

But a very different report followed the substitution of a standardized fluidextract. The dropsy which threatened the patient's life commenced at once to yield and the heart and kidneys resumed their functions. Let us therefore consider how fluidextract of apocynum is standardized.

Apocynum belongs to the so-called "Digitalis Series" which includes digitalis, or foxglove, apocynum, convallaria—commonly known as lilly-of-the-valley—squill, and strophanthus.

The drugs of this group have the peculiar power of stimulating the heart, and are of enormous value in the treatment of certain diseases of the heart and kidneys.

When given in medicinal doses they cause the heart to contract with greater force and empty itself thus restoring the circulation of the blood to the kidneys and other organs in case of heart weakness.

This property of strengthening the heart's action is invaluable in dropsy in which impaired circulation is a prominent factor. By its action on the heart and arterial system—which is in fact a continuance of the heart on account of its muscular walls and power of aiding the circulation by contracting—such drugs as apocynum, digitalis, and strophanthus, also act as diuretics. Forcing more blood through the kidneys they aid in purifying the blood of urea—the ash of tissue waste—and preventing death from uremic poisoning.

By their use the most severe forms of dropsy may often be quickly relieved, and the weak and dilated heart restored to normal action, and the patient at death's door returned to fairly good health and continued many years in a life of usefulness.

The first step in standardizing preparations of drugs is to assay the crude drugs before purchasing. The manufacturer of standardized drug preparations would soon find himself out of pocket if he neglected this precaution. Drugs are of value in direct proportion to the active principles they contain, and these constituents vary in different lots.

The next step consists in assaying finished products and adjusting the amount of active principles present to fixed standards. This is accomplished either by chemical assay or by physiological tests on animals, or by both methods, one being used as a control for checking results obtained by the other.

A number of the physiological methods for standardizing the digitalis series of drugs are in use, among which is the so-called "lethal dose" method of Reed and Vanderkleed.

The first step in this method consists in determining the lethal dose; this is accomplished in the following manner: A series of guinea-pigs is selected each weighing approximately 250 grams. The preparation to be tested, if a tincture or fluidextract, is then freed from the greater part of alcohol by evaporation, and diluted with water to the desired quantity. Into a series of four of the guinea-pigs this dilution is now injected in amounts equal to 9/10, 10/10, 11/10, and 12/10 of the standard lethal dose. The animals are then placed in cages and allowed to remain for twenty-four hours, when they are examined and a note made of those living and those which are dead.

The result of this preliminary test, in which the range of dosage is quite wide, enables the investigator to form some idea as to the strength of the preparation. Basing the dosage upon these results, other series of guinea-pigs are injected with progressively increasing or decreasing doses, as the case may be, still further diminishing the variations between doses, until the smallest amount is found which will prove fatal within twenty-four hours. The probable minimum lethal (toxic) dose of the preparation, unless it deviates considerably from that of the standard, is generally obtained by one or two series of injections.

In order to express the percentage results it is necessary to adopt for each drug or preparation assayed a standard minimum lethal dose (m. l. d.) with which the preparation being tested may be compared. For example, the m. l. d. of fluidextract of digitalis is 0.1 cc.; that of fluidextract of strophanthus, 0.0025 cc.; that of tincture of strophanthus, 0.025 cc.; that of fluidextract of apocynum, 0.075 cc.

After comparing the preparation to be standardized with the standard m. l. d., it is diluted or concentrated if necessary to bring it down or up, as the case may be.

As already stated, digitalis fluidextract on the market may vary 300 percent in strength. This fact was stated in Bulletin No. 48 issued by the U. S. Bureau of Hygiene, Washington, D. C. Later researches show the variation to be from 30 to 400 percent.

Now digitalis is one of the most important drugs in the treatment of diseases of the heart and kidneys, and conditions often arise in practice when the patient's life is entirely dependent upon its prompt and decided action.

Accuracy in dosage is essential. Unless the dose is large enough to produce the required effect upon the heart and circulation, failure results. If the dose is too large the patient dies of digitalis poisoning.

Imagine the danger resulting from neglect to use standardized digitalis preparations. The patient takes the prescription to the druggist who secured his pharmaceutical education before the advent of the modern drug standardization and obtains a fluidextract or tincture below standard. The dose prescribed fails to relieve the patient and is therefore increased. We will assume that the tincture is prescribed in 15-drop doses. This dose failing to relieve, 20 drops are given, to be rapidly and progressively increased for effect until 60 drops are used per dose and the same administered three times a day.

After a week or more the vial is emptied and the patient sends to the drug

store for renewal of prescription. In the meantime, the druggist has purchased a fresh supply of tincture of digitalis which happens to be three times as strong as the weak preparation first used. The patient goes on with the 60-drop dose as before. But now he is taking three times as much drug at a dose, or an amount equal to 180 drops. The toxic action of the drug soon manifests itself, the patient grows worse and worse, and finally dies in convulsions which are ascribed to uremia, when they were in fact, due to digitalis poisoning.

"How careless the doctor—how careless the druggist"—say you. Nay. Rather say, "How ignorant and negligent are both of the importance of drug standardization."

Or, the physician fearing to give larger doses of digitalis than that laid down in the text books as a maximum, goes on with his ineffectual dosing, and the patient finally dies in uremic convulsions. In either case death is the result, and the cause is the same, namely: Want of standardization of the digitalis preparation employed.

It may be asked why not separate the active constituents and use them for medication instead of trusting to the uncertain fluid preparations of the drug? There are insurmountable difficulties in the matter; in the first place, the active principles of digitalis are only partially known, and the isolation of those with which we are acquainted is attended with considerable difficulty. There appear to be at least four glucosides in digitalis which possess the characteristic action on the heart and circulation, and these are accompanied by one or more glucosides decidedly different in their effect. The therapeutic action is composite and is due to the combination of a number of principles which act and react on one another to produce the characteristic effects of digitalis as a therapeutic agent, therefore the only way to be sure of obtaining the desired effect is to use a physiologically standardized preparation of digitalis itself.

Therapeutic standardization by the cooperative investigations and impartial discussions of competent observers are necessary. Progress in materia medica science is dependent upon it, and public welfare demands it. How can we as physicians meet our obligations in this regard when new products are controlled commercially and introduced by advertising? Until some plan is adopted for the protection of professional interests impartial discussion is impracticable. If reports concerning advertised products are adverse there is a danger of law suits, if they are favorable there are suspicions of purchase. A strong central board of control representing commercial, as well as professional interests, is urgently needed to prevent dishonest exploitation of common interests by selfishness.

One of the problems of standardization is to prevent the finished product from deterioration on account of the action of the air. Preparations of ergot, digitalis, strophanthus, aconite, and several other important drugs soon lose their strength on this account.

It has never been realized until lately that most of the deterioration going on in fluids, owing to the action of the air, is due to the air held in the fluid rather than to the air in contact with the fluid in the container.

For example, a container may be completely filled with a fluid and then hermetically sealed, yet the oxygen of the air in the fluid will continue to act and cause its deterioration.

Researches were made in the Mulford Laboratories by Pittenger and Vanderkleed to determine the influence on deterioration of exhausting the air from fluids and then sealing them hermetically under vacuum.

Fluidextract of ergot was chosen for the experiment. First of all, the fluidextract was tested by injection into dogs, and gave an immediate rise of blood-pressure represented by 44.8 mm. of mercury. The total assay for alkaloids by the process of Meller, gave a percentage of .163. This fluidextract of ergot was then divided into four portions as follows:

A. The first portion was put up in vacuum in tubes specially designed and made for this purpose.

B. The second portion was filled into bottles which were tightly corked, and allowed to remain for one year unopened.

C. The third portion was filled into bottles which were kept loosely corked for one year, this being obtained by boring a small hole in the cork.

D. The fourth portion was tightly corked but opened occasionally throughout the year.

These four samples were tested upon dogs at the end of twelve months, with the result that with A, no loss of blood-pressure raising power was sustained; this was also true of the percentage of total alkaloids. Of the other samples, the tightly corked sample (B) deteriorated the least (about 35 percent). A greater deterioration was noted in C, and D, (tightly corked, but opened occasionally, conditions under which the preparation is commonly kept) showed the most marked deterioration (67 percent.)

These investigations would indicate that with complete exhaustion and exclusion of the air from the container and its contents, practical permanency may be secured.

I hope my paper has proved of sufficient interest to excite your desire to investigate the subject of standardization more deeply, and I am sure if you do so, many astonishing things await you. Among other things you will discover one of the causes of therapeutic nihilism, and you may find out that drugs possess powers undreamed of that can only be revealed by drug standardization.

THE SNEAK THIEF IN PHARMACEUTICAL ETHICS.

The pharmacist who loudly urges Sunday closing and then sneaks back to his store and lets in customers is a sneak thief; so is the one who prates of ethical pharmacy and then substitutes in a most pernicious manner. However, one of the worst sneak thieves in pharmacy is the one who places a large sign over his store which reads "No Cut Rate Druggist," and who still continues to cut right and left. He is first kin to the prescription percentage druggist who has a sign which reads "No Percentage Drug Store." The pharmacist who treats disease violates the ethics of pharmacy as well as medicine and is hence a double offender. Those pharmacists who declare that dishonesty and blindness to professional ethics are necessary to success in business are mistaken and they are very much mistaken at that.—*Pacific Pharmacist.*

Papers Presented to Local Branches

PALATABLE MEDICATION FROM THE MANUFACTURER'S POINT OF VIEW.*

MERLE M. BURDICK, CHICAGO, ILLINOIS.

I am pleased indeed at this opportunity to express myself upon a subject which is of so great importance to the doctor, the pharmacist and the manufacturer. The subject, "Palatable Medication," is a very broad one and is of interest to all who may be engaged in the preparation of medicines.

The business success of the doctor, the pharmacist and the manufacturer depends, first, upon the dependability and accuracy of their medicines, and, second, upon the palatability of these medicines. Every patent-medicine manufacturer recognizes this fact and makes his remedies pleasant to taste above everything else, efficiency being to him a secondary (though not negligible) consideration. The fortunes made in patent medicines bear out monetary far-sightedness of this policy.

Many a child has allowed a dislike for the castor oil he knew he needed to keep him from telling his parents he was not well until this condition became serious. Many adults really feel just as these children do. Those of us who have stood behind the prescription desk know how often the remark is made, "I hate to take that stuff."

There are several methods by which medicines may be made more palatable, and I have classified these under the three following heads: (1) Disguising, (2) Enclosing, and (3) Purifying or Modifying.

Liquids are *disguised* in the form of emulsions, syrups, elixirs and mixtures; solids as troches, honeys, confections, effervescent powders and suspensions.

Liquids are *enclosed* in elastic capsules, and solids in cachets or wafers, hard capsules, tablets, pills and granules.

Drugs may be improved in palatability by *purifying or modifying,* through the removal and elimination of nauseous and unpleasant constituents; or by the complete separation of their active medicinal agents in a form or volume making possible their enclosure or administration in pleasant form.

Let me repeat: First, *our medicinal product should be absolutely accurate in dosage and dependable in quality;* second, presented in a permanent pharmaceutical form, and as attractively as possible; and third, capable of administration in a palatable shape. The whole aim of manufacturing pharmacy is to make drug products conform to these three rules. Evolution is along these lines, as a review of the work of the last few decades will show.

In glancing through our Pharmacopoeias, from the fifth to the eighth revis-

* Read at the December, 1912, meeting of the Chicago Branch.

ions, we find that the infusions, an imperfect and unpleasant form of medication, have been reduced in number of fifty-nine in the fifth to three in the eighth edition. Syrups have increased from eighteen to thirty; emulsions from none to six; elixirs from none to three.

The effort all along the line has been *improvement, either in permanency or palatability, or in both.*

Our modern pharmacist is a capable and versatile man. He is called upon, in the course of a business day, to pass upon dosage and compound medicines of high potency when a slight error may mean a loss of life; he must be ready at a moment's notice to supply proper antidotes for poisons, give competent advice upon all the accessories needed by the sick, also regarding toilet and household preparations and other matters quite foreign to his profession, and must needs do all this in a manner that will retain the confidence of the physician and the good will of his customer.

With these many duties it is clearly impossible for him, however great his proficiency may be, to conduct the experiments necessary to originate any considerable number of new formulas or devise the methods of manufacture necessary for the preparation of elegant and palatable remedies in the quantities his business requires, and to do it with the scientific accuracy equal to that of the manufacturer, and make a profit in so doing. His facilities are insufficient and as a rule he wisely prefers to depend upon the manufacturer to furnish him these remedies, while employing his own energies in the commercial and strictly professional sides of his business. Of course he must be able to make emulsions, honeys, confections and troches for extemporaneous use. He can profitably make syrups and elixirs, of which he uses considerable amounts. He also has the capsule, a most valuable expedient for the administration of extemporaneous mixtures.

But in making many standard pharmaceutical preparations in common use, he cannot equal the pharmaceutical manufacturer in economy of production or in uniformity of product. The latter's automatic emulsifying machines permit of regulation of temperature and speed, resulting in qualities unattainable otherwise. His elastic capsule machine encloses the disagreeable oils and balsams. The troche machine cuts its thousands with greater accuracy and less labor than the druggist cuts a dozen. The automatic capsule-filling machine accurately fills many thousands each day. The tablet machine permits of the accurate subdivision of much used remedies and their presentation in such a convenient form that their advantages are apparent to physician and layman alike, such remedies being turned out at very small expense. All of these things, and many others, the manufacturer can make and furnish to the pharmacist at a cost so slightly above that of the material used that the pharmacist loses valuable time and money not to employ them.

The uses and methods of manufacture of troches, candies and elixirs, covering certain classes of medication, having been ably presented by Prof. Snow, Prof. Linton and Dr. Fantus, I invite you to consider the form used in the administration of potent drugs. This is a line of medication requiring the maximum of accuracy in dosage. These powerful drugs are used to meet serious conditions, and it is of vital importance that there shall be in their vended form neither the danger that comes from over-dosage or the inefficiency that attends insufficient

dosage. Our government through the Bureau of Chemistry, recognizes these dangers and is now testing the products of all manufacturers and demanding purity and uniformity. Such potent drugs must be permanent to meet these requirements and tests at any time.

In this field the manufacturer is rendering a great service to his retailing coworkers, especially in the preparation of such finished products as tablets, pills and granules in such a form that each and every dose is accurate, permanent and immediately usable.

The up-to-date manufacturer, that he may formulate and present this valuable class of preparations, has on his staff physicians who have had actual experience in treating the sick and in the administration of medicines; pharmacists with like experience in preparation and dispensing, and a corps of chemists, expert in research and analysis, as well as laboratories for physiological testing. These people have at their command an enormous amount of constantly growing tabulated information such as is required to produce this line of dependable medicines, and when it becomes necessary to produce a new product or to improve an old one they can do so at an expense that though large indeed in the aggregate, because of volume is trifling when reduced to the cost per dose.

His crude drugs and chemicals, whether made in his own house or purchased, are subjected to chemical or physiological tests, or both. He knows that his drug is right to start with. His formula is then carefully worked out, the nature of the drug being taken into consideration. Its solubility, disintegrability and the excipient best suited are all subjects of careful consideration. Then experiments are made to see if any of the processes required for its elaboration into the desired form are harmful to the drug, and if so, these are modified to meet conditions.

The formula being satisfactorily worked out, the drugs and excipients are weighed, checked for accuracy by another employe, then mechanically triturated for a sufficient period to completely mix them (sometimes 12 to 48 hours), then compressed into a tablet or rolled into a pill or granule, all the while being checked at each stage in its manufacture, and finally the resultant tested as to accuracy of dosage, disintegrability and solubility. The result is a nearly perfect pharmaceutical product, meeting the requirements of accuracy, permanency, dependability and palatability upon administration.

The granule made by the firm with which I am connected* is a product having the advantages of the pill and tablet without some of their faults. This form is especially useful in the exhibition of powerful alkaloids and other active principles in graduated dosage, for Dr. Fantus with his medicated candies cannot make strychnine sweet, or bad-smelling drugs pleasant. Here is where the granule has a special advantage—it can be crowded into such a small compass that taste and odor are matters of indifference. Even a baby can swallow one of these little pellets which can be "flipped" down the throat of a nursing infant, and being easily swallowed overcomes, for many people, the disadvantage of the pill and tablet. It is also readily soluble. It is certainly a portable, permanent and palatable form of medication.

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*The Abbott Alkaloidal Company.

The objection formerly raised against the pill and tablet, that they were insoluble, has been largely overcome by improvements in manufacture, the makers having eliminated (as in the case of the crude extract) everything except the part of actual medicinal value. For instance, we find in many drugs about 20% of extractive matter and this will contain medicinal elements running down to as low as 1-10 or 1% active principle. The non-medicinal portion of these extractives being largely gums, waxes, etc., is removed and is replaced to a certain extent by a completely soluble excipient, giving a product that breaks up readily and dissolves rapidly rendering the principle immediately available, thus reducing the volume of the product while increasing its efficiency. For illustration: Here is a sample of the extractive matter obtained from uva ursi, the source of arbutin, and here is arbutin as finished. It is a glucoside of value, but the drug itself and its crude extract have largely gone out of use because it contains so much tannin and valueless but unsightly and nauseating extractive matter that its physiological action is impaired and pharmaceutical elegance impossible.

We find in our experimental work that many tablets and pills fail in disintegrability and friability and are not soluble because the drugs from which they are made are not carefully prepared. They have not been handled properly in making; the extracts being especially unsatisfactory because of impurities left in them. Many are spoiled in drying and for this reason we use the active principles and other drugs of our special make.

In conclusion I would say that there are many reasons why the preparation and administration of medicine in pleasant form should be considered, alike, by the doctor, the pharmacist and the manufacturer and if their cooperation is consistent and sincere, they may give medicine the position it so justly deserves.

Christian Science, osteopathy and various other cults have been taken up by many people because of their lack of faith in and their dislike for medicine as it has been administered. The propaganda of various newspapers and magazines against patent medicines and quack medicines have caused many people to lose faith, and these things must be borne in mind by the doctor and the pharmacist who should prescribe and dispense only those things which can be depended upon to give results, not forgetting that they must also be pleasant to the consumer to win his favor.

I really believe that the pharmacist who would make it a point to let it be known among his patrons that he "specialized" in marketing remedies that are pleasant to take—or easy to take which is better—who advertised that fact and lived up to it, would find it exceedingly profitable. After all, people want to be cured, and cured *pleasantly*, and if they found that Dr. Fantus's candy lozenges or Dr. Abbott's sugar-coated granules "did the work" expected of them better than the bad tasting stuff, they would come to his store by preference, and not object to paying reasonable prices for the things that baby would take without a fight.

Our government is doing a great deal of fine work in the examination of medicinal preparations and because of it the doctor and pharmacist must eventually depend upon the manufacturer to furnish products which are permanent and accurate because of his superior facilities for chemical and physiological

testing and because of the increasing necessity for special machinery and men of scientific training in work of this kind.

I believe that it is the desire of every reputable manufacturer and I know it is of the Abbott Alkaloidal Company, to get into closer touch with the retail pharmacist. Accordingly I take great pleasure in inviting the members of the Chicago Branch of the A. Ph. A. to come and see how we extract alkaloids and other proximate drug principles, and how we make our own active principle granules—how we do our work.

PRINCIPLES AND OBJECTS OF PHARMACY LEGISLATION.*

H. C. CHRISTENSEN, MEMBER ILLINOIS ROARD OF PHARMACY.

In general discussions of the question of legislation, the popular idea prevails that all one has to do to bring about desired results, is to draft a bill, get some friendly member of the legislature to introduce it and then sit down and wait for it to be enacted into a law and receive the approval of the Governor of the State. But if one pursues this course, in ninety-nine times out of one hundred the desired result will not be accomplished.

There are many constitutional and legal requirements and rules of the General Assembly that must be complied with in the preparation and introduction of a bill, and its passage through the various stages of legislation. Many meritorious measures fail of passage for the reason that at the last moment some fatal error is found in the title or the body of the bill, which it is then too late to correct. Others pass both branches of the General Assembly, are approved by the Governor and are then declared unconstitutional by the Supreme Court for the reason that the constitutional requirements have not been complied with.

But it must not be presumed, from what I have said, that every bill which is introduced in the General Assembly reaches the order of passage. A very small percentage of the measures introduced ever reach this order. The rules of the General Assembly provide that every bill must be referred to a proper committee. Scores upon scores of bills have no particular merit in them and are not taken up for committee consideration until the closing hours of the General Assembly, when they are reported back to their respective houses without recommendation. Others receive careful committee consideration and are reported back either for or against passage. If the recommendation be favorable, then there are many other stages through which the bills must pass before a vote can finally be taken upon them. Many bills that have been acted upon favorably in committee do not get beyond that state, for the reason that in the great multiplicity of measures upon every conceivable subject there is not sufficient public interest or sentiment to push them along. I mean no reflection upon the members of the General Assembly when I say that many good bills are not enacted into laws. The members can hardly be expected to study care-

*Read before the Chicago Branch, A. Ph. A., Jan. 16, 1913.

fully every measure that finds its way into the legislative hopper. If there was a limitation upon the number of bills that could be introduced at a session, then it might be possible to give all of them careful consideration. But without such limitation many are bound to be neglected.

General, wide-spread interest and public sentiment are the greatest aids in securing good laws. But even with this assistance it takes a long time to bring about needed legislation. It took years and years to get upon the statute books of Illinois a General Primary law that would stand the test of the Supreme Court. The present Civil Service law was enacted only after many years of unceasing effort upon the part of its advocates. It was largely through the influence of the Illinois Pharmaceutical Association and the interest aroused by it that the first Pharmacy Law of the State was passed. Many other instances might be cited.

The first Illinois pharmacy law was enacted in 1881. It has been amended from time to time to meet changed conditions until we now have one of the best —if not the best—pharmacy law in the Union. You are familiar with it and I will not go into details concerning its provisions. But, good as it is, it should be still further amended in many particulars.

The Board of Pharmacy, of which I have the honor to be a member, has considered this matter carefully, and I do not think I can better present the question to you than to quote from a report made by the Board to the Governor of this State last month, which is as follows:

"In order to elevate the standard of requirements of applicants for examination, to enable the board to more effectively administer the cocaine, eucaine, adulteration and substitution provisions of the law, to provide facilities for conducting examinations, in compounding prescriptions and to keep pace with ever-changing conditions, we have the honor to make the following recommendations:

'The law should provide that every applicant for examination as registered pharmacist must be a graduate from a school or college of pharmacy that is recognized by the Board.'

"Any law which should be enacted along this line should protect the young men who have become registered as apprentices and assistant pharmacists and are now preparing themselves for examination as registered pharmacist under the present law, which does not require graduation from a school or college of pharmacy.

"At its last annual meeting the Illinois Pharmaceutical Association went on record as favoring the above graduation requirement and instructed its legislative committee to have a bill for such a law introduced at the coming session of the General Assembly. This action was taken following a referendum vote by the registered pharmacists of Illinois, the result of which was in the ratio approximately four to one in favor of such a legal requirement.

'The law in regard to the sale of cocaine and eucaine and their compounds and derivatives cannot be made too drastic. The present minimum penalty for their illegal sale should be made larger.'

"Fines of from $25.00 to $200.00 which have been imposed upon notorious sellers of these drugs will not stamp out the traffic in them.

'A penalty should be provided for a person not a registered pharmacist, licensed physician, licensed dentist or licensed veterinarian having in his possession at any time more of these drugs than can be obtained by means of a prescription.'

"There is no law against unauthorized persons having in their possession cocaine and eucaine undoubtedly held for sale. Neither is there any provision in

the United States statutes which in any way regulate the interstate traffic in these drugs.

"Investigation shows that during the year 1911 a wholesale druggist in Chicago sold to a retail druggist just across the line in Indiana 150 ounces of cocaine, a large portion of which found its way back into this state to supply the needs of illicit sellers. In a raid upon the home of one of the largest illicit dealers of cocaine in Chicago there were found over thirty ounces.

'A penalty should be provided for a registered pharmacist, licensed physician, licensed dentist or licensed veterinarian having in his possession at any time more than an extremely limited amount of these drugs. It should also provide the maximum amount that may be sold or prescribed by authorized persons in a given time.'

"In an arrest in Chicago a physician admitted the sale of over 30 ounces of cocaine in one month. The requirements for ordinary prescription purposes seldom run in excess of one ounce in six months. When arrested this same physician was in the act of giving two ounces of cocaine to a supposedly woman patient. He claimed he was 'treating the woman for the habit by diminishing the dose.'

'A limitation should be placed upon the amount of these drugs that may be sold by wholesalers to a single purchaser within a given time.'

"The records of ccoaine sales which the law requires wholesale druggists to keep show excessive sales of cocaine to retailers in the city of Chicago against whom no direct evidence of improper sales could be obtained, but the amount found in stock was largely in excess of the ordinary prescription requirements.

'An appropriation of not less than $7,500 annually should be made for investigating the illegal sale of cocaine and eucaine and other habit-forming drugs.'

The above amount is none too much for this purpose and could wisely and economically be expended. Cocaine is regarded by the medical profession as the most harmful of all the habit-producing drugs. It destroys the body, mind and soul and makes degenerates, thieves and paupers of its victims. The profits in it are immense—in some cases 500%—and unless its sale is curbed by stringent regulations there will always be found unscrupulous persons who are willing to 'take a chance.'

'An appropriation should be made for a laboratory where Pharmacopoeial and National Formulary preparations may be analyzed.'

"The present law authorizes our Board to make such analyses, but it has no equipment for this purpose and no funds. The Board should be provided with ample means so that it may protect innocent buyers from unscrupulous dealers. We have every reason to believe that countless preparations are adulterated in order that the purchaser may receive a larger amount for his money than can be procured from a near-by competitor.

"Numerous instances might be cited, but we will cite but two very common preparations, namely, tincture of iodine and solution of magnesium citrate. The former is used externally and the latter internally. Recent investigation as to the purity of these two preparations that are being sold in drug stores in Chicago shows an immense amount of adulteration. When of standard strength and purity tincture of iodine is of great value, but when adulterated its effect may be nil. When properly prepared, solution of magnesium citrate is a valuable laxative, but when adulterated and made of common washing soda, as was found to be true in some instances, its effect is deleterious to the health of those who use it.

'An appropriation of $1,500 should be made for two new prescription cases, one in our office in Chicago and one in the Springfield office.'

"The prescription counters now in use by the Board are crude affairs and are not a credit to the State of Illinois. As an example to applicants for examination

and who in time will be the proprietors of stores, our examination equipment should be the very best. Prescription counters should be equipped with good plumbing and electric lighting, and so constructed that applicants can perform all the work necessary in compounding prescriptions without being molested in any way in this important branch of our examinations.

'An appropriation of $4,000 per annum should be made for expenses of the members of the Board and its officers.'

"This amount would enable us to have an agent in the field at all times to see that the provisions of the Pharmacy Law are complied with."

In our report to the Governor, which I have just read, we did not go into minute details as to the reasons for our prerequisite recommendations, and I am going to take this opportunity to state our views more fully, and also to discuss what I regard as other needed amendments to the present law.

Prerequisite Legislation: Perhaps no legislation affecting pharmacy is entitled to more consideration than the proposed law requiring graduation from a recognized college or school of pharmacy as a prerequisite for examination as a registered pharmacist. This proposed law has caused a great deal of discussion among pharmacists and others, and in some instances has been bitterly criticised.

Some of this criticism comes from those who are, I fear, not wholly free from partisanship and personal interest. It seems to me that this subject may be fittingly considered under three sub-divisions, namely:

First, its relation to the public at large.

Second, its relation to the proprietors of drug stores and registered pharmacist clerks.

Third, its relation to unregistered clerks, or those who may eventually become registered.

How will this proposed law, if enacted, affect the public? And let me say right here that no matter how this law might affect pharmacists, boards of pharmacy, clerks, proprietors or others, the great rank and file of the people who elect representatives to enact their laws must receive first consideration. Laws are enacted primarily, or should be to protect the interests of the people as a whole, and not the few who may be interested in the enforcement of them, or those whose business or employment may be affected by them. This is especially true of the laws relating in any way to the public health. How, then, would this law affect the public? Need I argue that it will result in superior service? That such a law would redound to the benefit of the public, I think none will deny. Most men, the great majority of men, in fact, will give the best that is in them when they see and recognize that which *is* best. But how, I ask you, is a druggist going to give his customers Tincture of Iodine up to the standard, Syrup of Iron Iodide free from Iodine, Solution of Hydrogen Dioxide containing the required 3 percent of absolute Hydrogen Dioxide, and Ammonia Water containing the required 10 percent of NH_3, if he has not the skill or inclination to determine the strength, purity and quality of his preparations? I do not want to be understood as arguing that a college graduate is always the superior of the non-graduate, but I do maintain that out of a given number of college-

trained pharmacists the public will receive better service than out of a like number of non-graduates.

Opponents of graduation as a prerequisite may argue that 90 percent of the drug business is purely commercial and 10 percent professional, and that, therefore, college training is 90 percent unnecessary. But I reply that in times of sickness and distress, when the life of loved ones may be hanging in the balance, the 10 percent professional outweighs the 90 percent commercial.

Now, how would this proposed law affect proprietors and those who are already registered? Some proprietors are opposed to this law. Their principal objection is that clerks are now hard to get and that if a prerequisite law is enacted they will be still harder to find. As you know, it is intended to apply only to registered pharmacists. The result would be an increase in the numbr of assistant pharmacists, and, in my opinion, an improvement in the class of those who would be registered as registered pharmacists under the provisions of the act.

Proprietors are not suffering from a scarcity of registered pharmacist clerks, but rather from the competition of a certain class of registered men, who are not college graduates, and from unregistered men who have entered into business on their own account and are employing registered help.

Some of these men have embarked in business without sufficient training or capital to enable them to be successful along legitimate lines.

It is probably true that the enactment of a prerequisite law may, to a limited extent, increase the wages of good registered pharmacist clerks. But if the wages paid are commensurate with the duties of a good registered pharmacist clerk, this particular class will not embark in business on their own account until such time as they have received the necessary training and acquired the necessary capital to justify them in entering upon business careers, as proprietors, on a basis that would not be detrimental to those already in business. In other words, they would be honorable competitors.

Furthermore, the fact that at present a clerk can become registered without even attending college induces many young men to plunge into proprietorship of drug stores in the hope and expectation that by employing a registered man for a time they can prepare for examination, and at the same time conduct a business and make a living. To my mind this class of proprietors is the most dangerous competitor. Without the experience or training necessary to succeed, they are soon compelled to dismiss their registered help, evade the law as best they can and make a living by whatever means appeals most readily to them. This is the kind of competition honest, well-meaning and capable proprietors of drug stores are compelled to meet. Graduation as a prerequisite for registration would eliminate this latter class of competition, because few would have the temerity to engage in business on their own account with a two-year college course ahead of them, and which would necessitate their absence from the business a great portion of the time.

When we come to the question of the clerks who still have an examination to pass, we hear a great deal about the hardships it will impose upon young men who have not sufficient means to justify them in entering a school or college of pharmacy, and who therefore will be compelled to "work their way through

school." A thing is a hardship only when the result obtained does not justify the effort. If a young man succeeds in working his way through college and gets his diploma, it is not regarded by him as a hardship. Rather is he proud of what he has been able to accomplish by his own individual efforts.

In this city hundreds of young men work their way through medical, dental, law, literary and engineering schools under a heavy expenditure of time and money, much more than is required in a school of pharmacy, and yet we never hear of them complaining or wanting to dispense with the college course for these professions. With the "every-other-day" plan of instruction in vogue in the colleges of pharmacy scores of young men "work their way through" every year with much less effort and sacrifice than do the students in other professions.

It is argued that examinations by the Board of Pharmacy should determine a man's fitness for registration. As a member of the Board of Pharmacy for a number of years, assisting in the examination of hundreds of candidates, I assert that it is a hard undertaking to devise or give an examination that will always admit the fit and reject the unfit. A bright candidate, properly coached, can pass an examination of extreme difficulty, while the same candidate, if he had to put what he tells into actual practice, would in many cases fail. It is a positive fact, as has been demonstrated in examination time and again, that a candidate may give a detailed description of the method for the assay of Opium, for instance, and yet that same man would have great difficulty in assaying a sample of Opium if he were put into a laboratory for that purpose.

There are certain things, a certain training, obtained only by a systematic course in pharmacy, that no examination can measure, and yet, which the candidate must have in order to succeed in the true sense of the word.

College training in pharmacy is being required in the more advanced states. Where it has been tried there is no disposition to go back to the old order of things. It is in harmony with the progress of the times and follows naturally similar requirements in medicine, dentistry and other learned professions. Is there any reason why Illinois, which leads in so many good things, should lag in this important educational movement?

As to the other recommendations in our report to the Governor, I think the reasons given therefor are sufficient to enable you to get a clear understanding of what the Board of Pharmacy regards as being necessary, and to properly bring these matters before you for discussion. I will not therefore dwell upon them at any further length.

A Pure Drugs Act: If you followed the above report of the Board to the Governor closely you observed that with the exception of a request for an appropriation sufficiently large to enable the Board to properly equip a laboratory for analyses, no recommendation is made for further amending the law to prevent the manufacture or sale of adulterated or misbranded drugs. In other words, no recommendation is made for what is known as a "pure drugs" act, of which the Federal act upon this subject should be the basis. Personally, I am firmly of the opinion that such a law should be enacted.

Section 14 of the present law covers the manufacture and sale of medicines and preparations recognized in the United States Pharmacopœia and National Formulary as official. No deviation from this standard is permitted. The

law as applied to this class of preparations is in accordance with the so-called "single" standard. This, I believe, is as it should be.

But the section referred to is silent upon the subject of labeling preparations intended to be used for the cure, mitigation or prevention of disease, and genrally known as patents and proprietaries, in order that they may show whether or not they fall below the professed standard of strength or purity under which they are sold.

Neither is there anything in the section referred to upon the subject of the package or container bearing a statement upon the label of the quantity or proportion of Morphine, Opium, Heroin, Chloroform, Acetanilide, etc. I realize that there are many well-meaning druggists in the State who are opposed to any further statutory regulation in these respects. The United States Government requires certain labels upon all medicines and preparations which enter into Interstate traffic. A number of States require them on domestic preparations. Outside of the pharmaceutical profession there is a strong sentiment and general demand for a more stringent law in regard to these matters, and I am satisfied that within the very near future such a law will be passed by the General Assembly. If the druggists of the State oppose it, then its administration will be committed to the State Food Commission.

In not a few states, pure drug laws were enacted under an aroused public sentiment, which were distinctly detrimental both in their nature, and manner of enforcement to the druggists of these States, and without being of any special advantage to the public. Had the druggists of those states taken an active interest in the matter no doubt these laws would have conserved every interest on the subject, and at the same time proved less distressing to the pharmacists. In order that this state may not have a similar experience, it is high time the druggists took upon themselves the task of doing two things,

First, securing an appropriation to enable the Board of Pharmacy to properly enforce the existing law pertaining to pharmacy, and

Second, securing the enactment of a law or an amendment to the present law along the lines of the Federal act that will conserve the public welfare and not work an undue hardship upon the pharmacists.

It is for the pharmacists of Illinois to say whether they will champion a pure drugs act which will be enforced by the State Board of Pharmacy, or whether they will sit idly by and permit such legislation to be fostered and enforced by those who may not have the best interests of the pharmacists at heart.

Sanitary Inspection of Drug Stores: Another needed amendment to the pharmacy law is one establishing authority to inspect and regulate the sanitary conditions of drug stores. That there are *some* stores that might be improved by such a regulation, I think you will admit. Not *your* stores, of course, but *some* stores. Over on the West Side a druggist has opened what he calls a "Sanitary Drug Store." Why a Sanitary Drug Store? Evidently this druggist believed that a Sanitary Drug Store would make a "hit," the same as Sanitary Barber Shops, Antiseptic Laundries, and Sterilized Turkish Baths. Are there other drug stores in the city that are not sanitary? It seems to me that the very naming of this Drug Store has a rather pertinent significance. We have, especially in the larger cities of the state, laws, regulations, or ordinances

providing for the inspection of grocery stores, meat markets, restaurants, dairy depots, etc., in order that the public health may be protected.

Does it not appeal to you that any business as closely related to the public health as a drug store should also be subjected to sanitary regulation?

There is also another reason, and to my mind a more potent reason why drug stores should be so inspected. The law of this state provides that drug clerks must have had three or four years' experience in retail drug stores compounding prescriptions under direction of a registered pharmacist prior to registration, thereby establishing and recognizing the necessity of actual experience as a training for the profession. In what kind of an environment do these clerks get their training? If you had stood, as I have stood for the past six years and watched clerks compounding prescriptions, and if you had seen the carelessness, I might say, slovenliness of the work of some of them, had seen the condition in which they turned out the finished product, the filthiness in which they left mortars, graduates, balances, spatulas, and counter, you would wonder where some of these men were trained, or rather you would wonder about their preceptors. And mind you these same men came with affidavits of from three to ten years' experience from druggists of this state who would resent most emphatically any imputation that their stores were not the acme of cleanliness and their methods of dispensing beyond reproach. Furthermore, unsanitary surroundings tend to make clerks, especially in the impressionable stage of their apprenticeship, careless in their weighing, measuring and other essentials of successful dispensing. It cannot be expected clerks trained in slipshod drug stores will become neat and careful pharmacists.

In view of the fact that the state recognizes and accepts drug store experience as an essential qualification for registration, should not the state supervise the conditions under which this training is received?

Inspection of Weights and Measures: Another amendment to the pharmacy law should establish inspection of weights and measures used in the drug stores of this state. The state law permits cities to pass ordinances establishing a city sealer's office for the inspection of the weights on which you buy your sugar, meat, grain or coal and the measures by which you purchase your milk, malt or coal oil. In most large cities, ordinances to this effect have been passed, and are being enforced, but no provision is made for the inspection of the weights and measures used in compounding medicines upon which human life may depend. This is clearly a serious omission. The passage of such a law would necessarily provide for *standard* weights and measures that would be accessible to the druggist. As it is now, the only guaranty that the druggist has as to the accuracy of his weights and measures lies in the integrity of the person who supplied the same to him. Too frequently, the pharmacist sacrifices accuracy to price with results more serious than he may ever know.

The Federal Government, recognizing the importance of accuracy in weights and measures, has established a "Bureau of Standards" in which all the weights and measures used in government work may be, and many *must* be, standardized. In the sugar work of the customs service, for instance, no apparatus may be used unless it bears the seal of the Bureau of Standards, and the weights they furnish are gold plated in order that there may be no change after same leave

the bureau. If you think weights and measures generally supplied are accurate, go into any dealer in chemical apparatus and price the ordinary burettes and graduates and those that are standardized and guaranteed correct. You will be astonished at the difference in price.

The state makes provision for punishing a pharmacist if his preparations are not up to the standard and yet makes no provision for aiding him in establishing the reliability of his weights and measures on which the accuracy of his preparations *absolutely* depend.

In favor of this amendment to the law, it may be said it would be a preventive rather than a punitive measure, a help to the druggist not a handicap, a measure in harmony with the spirit of all legislation, which aims to prevent rather than punish infractions of the law. Ninety percent of the druggists of the state would avail themselves of an opportunity to establish the accuracy of their weights and measures if there was a set of standards in their city or county. The other ten percent should be compelled to.

In the suggested amendments of the law for the inspection of the sanitary conditions of stores as well as for the inspection of weights and measures, I lay great stress upon the importance of having these measures enforced by the Board of Pharmacy, rather than by some other branch of the state government that might be either indifferent or hostile to the welfare of the pharmacist. You cannot impute any selfish motive to a member of the Board of Pharmacy for recommending that these measures be enforced by the Board, because membership on the Board of Pharmacy may change, but it is highly important to the pharmacists themselves that laws be both drafted and enforced by those who fully understand the conditions under which the pharmacist must work.

The Board of Pharmacy, elected you might say, by the pharmacists of the state, acting through the state association, conversant with the needs, desires, limitations, etc., of the pharmacists, is in a better position to enforce fairly and justly, the laws pertaining to pharmacy than any foreign executive body of the state government.

Revocation of Certificates: Authority should also be given to the Board to revoke the license and close the stores of persistent violators of the Pharmacy Law. The law requires that applicants for examination as registered pharmacist and assistant pharmacist shall be of good moral character and temperate habits, and also confers upon the Board the power to revoke the certificates of registered pharmacists and assistant pharmacists, who have become addicted to the excessive use of stimulants and narcotic drugs and whose moral character has deteriorated. No doubt there are many persons holding certificates at this time which should be revoked on these accounts. But the Board of Pharmacy has no means of telling who they are, and cannot act in the premises unless they are advised by proprietors and others. The Board realizes that it would be very embarassing at times for proprietors to report information about clerks which would result in their certificates being cancelled, but it seems, for the general welfare of the profession, that this should be done.

Paris Green Section: That part of the law which permits the sale of "Paris Green and Lead Arsenate for insecticide purposes only" by other than registered pharmacists, should be changed. It should provide for their sale, and also for

the sale of other poisonous substances or mixtures of poisonous substances in unbroken packages, for use in the arts or as insecticides, upon condition that they bear a label with the names of such poisonous substances and the word "Poison" printed thereon in prominent type, and the names of at least two readily obtainable antidotes with directions for their administration.

In concluding, I want to refer very briefly to the work of the Board of Pharmacy during the last eight years, most of which time I have been a member of it. In that time the Board has examined 3926 applicants for registered pharmacists and 2503 candidates for assistant pharmacists, to say nothing of the hundreds upon hundreds of apprentice applicants, whose examinations have been about the same as is required for eighth grade pupils in the public schools. Some applicants for registered pharmacist and assistant pharmacist, in fact, a great many of them, have taken two, three and even four examinations, and therefore the numbers above mentioned do not necessarily mean that many different *individuals*. Of the above numbers, 1592 applicants for registered pharmacist and 1366 applicants for assistant pharmacist passed successful examinations and were granted certificates. Every applicant has been examined in four branches in written work and until the year 1912 has been required to compound four prescriptions. During the past year applicants have compounded but three prescriptions or preparations each. This means that approximately 25,716 written examination papers have been carefully gone over and rated by the Board and that 24,709 prescriptions have been compounded under its close supervision.

From the organization of the Board in 1881 until July 1, 1911, it was self-sustaining. During all that time the General Assembly did not appropriate a single penny for its maintenance. Since July 1, 1911, we have been paying all moneys received into the State Treasury. Up to October 1 of this year we have paid $28,826.50 into the State Treasury and had spent $19,938.76 of the $31,560.00 appropriated to maintain the office until July 1, 1913. By July 1, 1913, we will have paid into the State Treasury approximately $45,000.00. You will observe that the Board is paying more money into the State Treasury than it receives by way of appropriations. The Board feels that the General Assembly should at least appropriate as much as the state receives.

A QUESTIONABLE PRESCRIPTION.*

JOHN A. HANDY, PH. C., B. S.

The following prescription was recently brought to my attention by one of the members of the State Board of Pharmacy, who informed me that it was one which had been sent to his store by a local physician:

"Phenol (carbolic acid) C_6H_5OH ..... 2 grains
Arsenic Trioxide (arsenous acid) As_2O_3 ..... 1 grain
Silver Oxide Ag_2O ..... 6 grains
Mercurous Iodide (proto-iodide) HgI ..... 12 grains
Extract of Hyoscyamus ..... 6 grains
Extract of Liquorice (powdered) ..... 100 grains
Mix and make into 48 pills.
Sig.—Take one pill before meals."

*Read before the Northwestern Branch.

Physiologists inform us that very little absorption takes place in the stomach, except such as the soluble mineral salts, and such organic liquids as chloroform, alcohol, etc. Water taken into the stomach is almost immediately thrown into the intestinal tract. In those cases where the medical substances are not rendered inactive by the acid contents of the stomach, solution here will hasten the absorption of the drug in the intestinal tract.

It is in such cases that the dispensing pharmacist must exercise scientific judgment. He should know that the stomach contents are usually acid from the small amount, about 0.2%, of free hydrochloric acid present in the gastric juice; and he should endeavor to prevent those things from going into solution in the acid stomach contents, which would be rendered inactive and inert by so doing. The safest rule to follow is to dispense pills so that they may pass through the stomach and be dissolved by the alkaline intestinal juices. This will necessitate a careful study of the ingredients of the prescription, and the selection of an excipient that will give a finished product meeting the general requirements of stability, solubility, etc.

To attempt to even guess at the purpose and motive, which might have inspired the above prescription in the mind of the physician who wrote it is not within the scope and purpose of this paper.

The formula as it stands presents a serious chemical incompatibility if not properly compounded, and even then, one of the ingredients at least will be inactive and inert.

If the above ingredients are mixed in the order in which they are given, we would have a mixture of phenol, arsenic trioxide, and silver oxide, which upon trituration would immediately burst into flame. This is caused by the energy liberated in the disruption of the molecules of silver oxide—giving up their oxygen and leaving the silver as a hard metallic scale, and occurs only when the silver oxide is mixed with the arsenic trioxide and then brought in contact with the phenol. This is perhaps due to the fact that the arsenic trioxide is a week reducing agent, and helps to tip over the somewhat unstable molecule of silver oxide in the presence of other reducing agents, as phenol, which in itself could not do so in the small proportion used in this formula. No free iodine or free mercury were found at any time in any of the combinations of ingredients used.

In order to prevent the silver oxide from being reduced so rapidly as to cause combustion, compound as follows:

Rub the phenol and the arsenic trioxide together first (the gritty As_2O_3 assisting in the powdering of the phenol) then add a little of the powdered extract of glycyrrhiza (20 to 30 grains) and then incorporate the extract of hyoscyamus (if the latter is added directly to the phenol-arsenic mixture, the whole mixture rubs up into a sticky mass, due perhaps to the moisture in the extract of hyoscyamus which makes it difficult to incorporate the remaining ingredients), next incorporate the protoiodide; then the silver oxide and finally the remaining extract of liquorice.

It is useless to try to keep the silver oxide from reducing, because according to the famous pharmacologist Jacobi, "this metal is absorbed in extremely small amount and is reduced to the inactive metallic state as soon as it enters the

body; it is absolutely proved that the silver cannot be absorbed in amounts sufficient to have any action whatsoever."

A series of experiments were made with the above pills compounded with different excipients, including water, glycerin, glycerite of starch, syrup and glucose, to find out which were most easily disintegrated in water, in artificial gastric juice and artificial pancreatic juice. The pills were suspended from platinum loops in bottles filled with these fluids and kept at body temperature for several hours.

It was found that the pills containing water as the excipient disintegrated and dissolved the most completely; glycerin came next in efficiency. In all cases there was a considerable residue which did not go into solution, showing that some of the material was insoluble and consequently, practically inert medicinally. In nearly every case the pills were not greatly affected by the artificial gastric juice, but were considerably disintegrated in the alkaline pancreatic juice.

BUSINESS LIFE BOATS.

How about your life boats? By this we mean your resources, upon which you can fall back in times of trouble. There are two of these which should be constantly looked after as to sea-worthiness as they are the first into which you will scramble in time of impending financial shipwreck.

They are, first, your credit.

And second, your moral standing.

Now the peculiar thing about these two "boats" is that one cannot be lowered without the other. To establish and maintain a good line of credit your reputation as a moral man has got to be A No. One. Ideas on this matter differ, but it has been proven time and time again that the man who leads an immoral life in the long run loses his business. He may think that he is pulling the wool over the public's eyes, but the very things that he wants to keep under cover and which he undoubtedly thinks are secret are just the ones to leak out, and then it is only a question of time before every one is "on to him."

Not only make your business clean, but make yourself clean, and see that the same thing is true of your clerks. Let people know that your store is a safe store. As to credit, you all know the importance of this. It is of untold value to you and you should make every effort to keep it always spotless.

There are many kinds of icebergs that obstruct the business highways, and a watch has to be constantly kept to steer clear of them. It is a fact and a sorry one too, that it always takes some big disaster to awaken people to the realization of the importance of changing things so as to assure safety in the future to others. So if your competitor is hit by a financial "berg" and goes under, look to it that you steer clear of the same trouble that sank him. We can always learn from the other fellow's blunders as well as our own, and even if things are seemingly calm around you now, and you are sailing along smoothly, just keep a sharp lookout, your credit the best, and your character as near the high water mark as possible.—*The Apothecary.*

Of General Interest

PROCEEDINGS RELATING TO THE ORGANIZATION OF THE NATIONAL DRUG TRADE CONFERENCE.

(First Session.)

The delegates to the Legislative Conference provided for in certain resolutions adopted at the Denver meeting of the American Pharmacutical Association, met in Parlor 128 of the New Willard Hotel, Washington, D. C., Jan. 15, 1913 at about 10 A. M.

J. H. Beal announced that Mr. John C. Wallace of New Castle, Pa., had been designated by President Day of the American Pharmaceutical Association to preside as Temporary Chairman.

Mr. Wallace called the conference together at 10:45 A. M., and stated that the first business in order would be the reading of the call for the conference.

J. H. Beal as Temporary Secretary then read the resolutions as follows:

"Moved by J. H. Beal seconded by John C. Wallace:

"(1) That the American Pharmaceutical Association hereby calls a conference to be made up of delegates from the various national pharmaceutical associations to consider the subject of legislation, both state and national, in its relation to pharmacy.

"(2) That the General Secretary is instructed to send invitations to each of the national pharmaceutical associations requesting the appointment of delegates to such conference.

"(3) That such conference shall be held at Washington, D. C., some time prior to January 1, 1913.

"(4) That the Temporary Chairman of the conference shall be appointed by the President of the American Pharmaceutical Association, and the General Secretary of the association shall act as Temporary Secretary of the same.

"(5) That such conference shall elect its own permanent officers, and after its organization shall be considered as representing all of the associations sending delegates to the same, and shall not be considered as being conducted under the auspices of any particular organization." (*Journ. A. Ph. A., Oct., 1912, p. 1106.*)

The Temporary Secretary stated in explanation that the date Jan. 1, named in the resolutions had been later changed by action of the Council to Feb. 1.

The Temporary Secretary also read the list of delegates to the Conference for whom he had received credentials. There were as follows:

Representing the American Pharmaceutical Association:
John C. Wallace, New Castle, Pa.
S. L. Hilton, Washington, D. C.
J. H. Beal, Scio, Ohio.

Representing the National Wholesale Druggists' Association:
F. E. Holliday, New York City.
C. Mahlon Kline, Philadelphia, Pa.
E. D. Taylor, Richmond, Va.

Representing the National Association of Manufacturers of Medicinal Products:
Adolph Rosengarten, Philadelphia, Pa.
A. R. L. Dohme, Baltimore, Md.
Charles M. Woodruff, Detroit, Mich.

Representing the American Association of Pharmaceutical Chemists:
Willard P. Stearns, Chicago, Ill.
W. C. Abbott, Chicago, Ill.
R. C. Stofer, New York City.

Representing the National Association of Retail Druggists:
W. C. Anderson, Brooklyn, N. Y.
F. H. Freericks, Cincinnati, Ohio.
J. F. Finneran, Boston, Mass.

A call of the roll showed that all of the above delegates were present. The Temporary Secretary also read a letter from the National Wholesale Druggists Association, requesting that Mr. Chas. A. West be permitted to act as a delegate in place of F. E. Holliday at the afternoon and subsequent sessions, as Mr. Holliday would be compelled to leave the city at 2 P. M.

It was moved by F. H. Freericks, and seconded by F. E. Holliday that the Temporary Officers continue to act until a permanent organization had been effected, and their successors elected. The motion was carried.

It was moved by J. F. Finneran, seconded by W. C. Anderson, that delegates present from any organization related to pharmacy and interested in pharmaceutical legislation be admitted as members of the Conference.

It was moved by W. C. Abbott, seconded by W. P. Stearns, that the motion be amended so as to admit to the Conference members of the accredited legal committees of the American Medical Association, American Dental Association, and American Veterinary Association.

After some considerable discussion, J. H. Beal offered the following substitute for the motion and amendment, which was seconded by W. C. Anderson:

"(1) That the Chairman appoint a committee of five on Form of Orangization and Nominations, and a committee of five on Resolutions, both of the said committees to report at a subsequent session of the Conference.

"(2) That until the aforesaid committees shall be ready to report, the Conference proceed to the consideration of pending national opium legislation.

"(3) That the privileges of the floor be extended to the delegates present from other medical and pharmaceutical associations or associations interested in pharmaceutical legislation."

The substitute resolutions were unanimously adopted.

It was moved by Adolph Rosengarten, seconded by F. H. Freericks, that the Conference adjourn for 30 minutes to enable the respective delegations to consult and to select spokesmen to represent their respective interests. The motion was carried.

The Conference was again called to order at 12:15 by Chairman Wallace.

F. E. Holliday announced that Dr. Hamilton Wright had extended an invitation to the Conference to meet with him at the State Department some time during the present day. It was moved by F. H. Fredericks, seconded by W. C. An-

derson, that an invitation be extended to Dr. Wright to meet with the Conference at its present meeting place at 3 P. M. this day. The motion was carried.

On motion of F. H. Freericks, seconded by J. F. Finneran, the several organizations represented by delegates in the Conference were requested to express their views respecting the so-called Harrison-Wright Bill, H. R. 25834, designed to regulate the importation, manufacture and sale of certain habit forming drugs.

Mr. C. M. Woodruff spoke for the National Association of Manufacturers of Medicinal Products, criticising the bill as being incapable of application on account of the complexity of the methods proposed for stamping the derivatives and preparations of the original crude drugs, and the multiplicity of the records and reports which it proposed to require. He also presented and explained a substitute bill which he recommended for approval by the Conference.

W. C. Abbott spoke on behalf of the American Association of Pharmaceutical Chemists. He also opposed the bill on account of the impossibility of complying with the proposed requirements regarding the stamping and keeping a record of the derivatives and preparations of opium, and expressed his approval of the substitute measure proposed by Mr. Woodruff.

C. Mahlon Kline spoke on behalf of the National Wholesale Druggists Association, and said that while he regarded the bill as being exceedingly faulty, the members of his association would nevertheless make an earnest effort to comply with its provisions if it should become a law, although he was not yet able to see how some of the proposed requirements could be carried out. Mr. F. E. Holliday also spoke for the same association.

Mr. F. H. Freericks spoke in behalf of the National Association of Retail Druggists and pointed out the numerous inconsistencies of the bill, especially in the provisions relating to stamping and the keeping of records.

S. L. Hilton and J. H. Beal each spoke on behalf of the American Pharmaceutical Association. They expressed their approval of the bill in so far as it related to the general principles to be followed in regulating the sale of opium and cocoa leaves, their derivatives and preparations, but expressed the opinion that the machinery for carrying the provisions into effect, especially as regarded the stamping of derivatives and preparations and the keeping of records, was entirely too complicated. It was their opinion that if these provisions were enacted into law, they would impose heavy and quite unnecessary burdens upon the retail drug trade.

At this point, the Temporary Secretary stated that several representatives of the Proprietary Association of America were present in the room. It was moved by F. H. Freericks, seconded by J. H. Beal that the representatives of that association be admitted to the privileges of the floor, and a vote being taken it was so ordered.

The Chairman then invited H. B. Thompson, Esq., of Toledo, to speak for that organization. Mr. Thompson stated that the presence of himself and Mr. Frank J. Cheny was accidental; that being in the hotel they had learned of the Conference and had been invited by a member to be present. Their visit was to be understood as one of courtesy merely. The members of the Proprietary Association were entirely satisfied with the provisions of the proposed legislation

regarding narcotic drugs, as it would not in any way affect the interests of the Proprietary Association. On behalf of that association, he thanked the Conference for its grant of the privilege of the floor.

It was moved by W. C. Anderson, seconded by F. H. Freericks, that the substitute bill offered by C. M. Woodruff be referred to a special committee of five for consideration and report. Carried. The Chairman appointed the following Committee:

C. M. Woodruff.
W. C. Abbott.
F. H. Freericks.
C. Mahlon Kline.
John C. Wallace.

The Chairman also announced the following committees provided for by the substitute resolutions previously offered by J. H. Beal and adopted by the Conference:

Committee on Form of Organization and Nominations:
J. H. Beal.
A. R. L. Dohme.
J. F. Finneran.
C. Mahlon Kline.
W. P. Stearns.

Committee on Resolutionss
W. C. Anderson.
Adolph Rosengarten.
C. A. West.
S. L. Hilton.
R. C. Stofer.

On motion the Conference then adjourned until 3 P. M.

(Second Session.)

The second session of the Conference was called to order at 3:30 P. M. by Chairman Wallace.

The Chairman stated that Dr. Hamilton Wright was present in accordance with the invitation previously extended to him, and requested him to address the Conference upon the provisions of the bill known as H. R. 25834.

Dr. Wright explained the relations between the latter bill and two other so-called Harrison Bills which related exclusively to the importation and manufacture of smoking opium, and requested the members of the Conference to point out their objections to the bill, H. R. 25834.

Mr. Freericks called attention to the fact that under the bill as it now read retail pharmacists would not be permitted to manufacture even the ordinary galenical preparations of opium, such as laudanum and paregoric.

Dr. Wright stated that this omission was due to an oversight, and that he would be glad to receive suggestions for its amendment.

W. C. Anderson moved, seconded by J. F. Finneran to amend as follows: In section one, after the words "give away" insert the following: "Dispenses or manufactures for sale to the consumer." The motion was adopted.

F. H. Freericks called attention to the fact that the bill as it read at present would require a druggist or veterinary physician to take out a wholesaler's license before he could dispense more than one pint of a colic mixture containing opium intended to be administered to a horse. Mixtures of this kind frequently amounted to the measure of a pint and a half. or one quart. He also called at-

tention to the fact the bill apparently placed no restriction upon the sale of solid preparations of opium in any quantity.

The subject was further discussed by Messrs. Wright, Freericks, Kline, Wallace, Beal and Anderson, each speaking several times.

On motion the Conference then adjourned to meet at the office of Representative Harrison at the Congressional Office Building, for further discussion of the bill, the Conference to re-assemble in Room 128, Hotel Willard, at 7 P. M.

(Third Session.)

The third session of the conference was called to order in room 128 Hotel Willard, Jan. 15, at 8:30 P. M.

The Chairman stated that the first business in order was the consideration of the reports of the committees previously appointed.

J. H. Beal for the Committee on Form of Organization and Nominations, first presented the report upon Form of Organization as follows:

"The Committee on Form of Organization and Nominations respectfully reports and recommends the adoption of the following Code of Rules and Regulations:

CODE OF RULES AND REGULATIONS OF THE NATIONAL DRUG TRADE CONFERENCE.

"(1) This organization shall be known as the National Drug Trade Conference.

"(2) The Conference shall consist of three regularly accredited delegates from each of the following organizations:

The American Pharmaceutical Association,
The National Association of Retail Druggists,
The National Wholesale Druggists' Association.
The National Association of Manufacturers of Medicinal Products.
The American Association of Pharmaceutical Chemists,

And three delegates from each of such other national medical and pharmaceutical organizations as may be hereafter admitted to membership by a majority vote at any regularly called meeting of the Conference. The presence of nine properly accredited delegates shall be necessary for a quorum at any meeting.

"Any duly organized medical or pharmaceutical organization shall have the right to be heard through its properly appointed representatives, and such representatives shall be entitled to the privileges of the floor.

"Properly accredited delegates who are unable to attend the meetings may designate in writing persons who may act as their alternates and such alternates shall have all of the rights and privileges of the delegates whom they represent.

"(3) The objects of the Conference shall be to consider and report to the respective organizations represented therein upon matters of legislation, or upon any other matters of national and general importance to the drug trade.

"The Conference will not assume to express the views of, nor to bind its respective constituent organizations, except in so far as it may be authorized so to do by such constituent organizations.

"(4) The officers of the Conference shall consist of a President, three Vice Presidents, and a Secretary. If necessary the Secretary shall also act as Treasurer of the Conference.

All officers shall be elected by the ballots of regularly accredited delegates, and shall hold their respective offices for one year, and until their successors shall have been elected and installed.

"(5) There shall be one standing committee to be known as the Executive Committee, consisting of the President, the Secretary and three other delegates nominated from the floor and elected by ballot.

The Executive Committee shall act as a committee on credentials, and shall have charge of the business of the Conference during the intervals between meetings, all of its actions being subject to review by the Conference.

"(6) Meetings of the Conference shall be called by the President upon the written request of any five delegates, and not less than ten days' notice shall be given of the time and place of such meetings.

"(7) During the intervals between meetings the business of the Conference and of the Executive Committee may be transacted by mail. A motion put by mail shall not require a second, and a majority vote of the delegates, or of the members of the Executive Committee, shall be required for the adoption of any motion or resolution.

"(8) Except as herein otherwise provided, the generally accepted rules of parliamentary law shall govern the deliberations of the Conference.

"(9) Proposals to amend these rules and regulations shall be made in writing at one session of the Conference and voted upon at the next succeeding session, and shall require the vote of a majority of the delegates present for adoption."

(Signed) J. H. BEAL, Chairman.
WILLARD P. STEARNS.
A. R. L. DOHME.
J. F. FINNERAN.
C. MAHLON KLINE.

On motion of C. A. West, accompanied by W. C. Abbott the report was received, and on a further motion by C. A. West, seconded by W. C. Abbott the resolutions were approved and adopted.

Mr. Beal then presented the report on nominations as follows:

For President—John C. Wallace, New Castle, Pa.
For Secretary—Charles M. Woodruff, Detroit, Mich.
For First Vice President—Charles A. West, Boston, Mass.
For Second Vice President—W. C. Anderson, Brooklyn, N. Y.
For Third Vice President—W. C. Abbott, Chicago, Ill.

On motion of J. F. Finneran, seconded by Adolph Rosengarten the report was received and the Secretary was instructed to cast the ballot of the Conference for the nominees, which was done accordingly.

The Chairman then announced that the officers above named were duly elected and called upon C. M. Woodruff to assume his place at the Secretary's desk.

J. H. BEAL, Temporary Secretary.

Mr. Woodruff assumed his duties as Secretary.

M. I. Wilbert presented the following telegram:

CHICAGO, January 15, '13.

M. I. Wilbert, 25th and E. Sts. N. W., Washington, D. C.:
Abbott wires from Washington: "Exceedingly important American Medical Association be represented Conference Drug interests Willard Hotel now in session." Please represent association.
GEORGE H. SIMMONS.

On motion of Wm. C. Anderson, seconded by J. H. Beal the privileges of the floor were granted to Mr. Wilbert.

Moved by Mr. Beal and seconded by Mr. C. M. Kline that the Committee on Resolutions prepare a resolution expressive of the general views of the Conference on Federal narcotic legislation, so that the position of the Conference may not be misunderstood because of any opposition to any particular measure.

Motion carried and Committee on Resolutions retired.

A. R. L. Dohme moved and J. H. Beal seconded the adoption of the following resolution which was unanimously carried:

Resolved, That the National Drug Conference hereby expresses its approval of uniform state and federal drug legislation in line with the action of associations in other lines and hereby instructs its executive committee to endeavor to bring about such uniform drug legislation in state and nation.

Mr. C. M. Kline read the following communication which was ordered filed without action:

PHILADELPHIA, PA., January 13, 1913.

Mr. C. Mahlon Kline, Philadelphia, Pa.:
DEAR SIR—When you meet with the "National Legislative Conference" on January 15, 1912, at Washington, D. C., I would suggest that your Conference recommend to the National Association of Boards of Pharmacy the establishment of "National Registration Certificates" for Qualified Assistants and Registered Pharmacists examined under the State Pharmacy Laws.

In other words, that the National Association of Boards of Pharmacy act as a national clearing-house for the certificates issued by the 52 Boards of Pharmacy, according to the following plan:

1. The existing National Association of Boards of Pharmacy shall be incorporated under the laws of the District of Columbia, Washington, D. C., as was "The United States Pharmacopœial Convention" in 1900.

2. The N. A. B. P. shall frame certain standards of examination and registration which shall be reasonable and representative of the best requirements of as many of the State Pharmacy Laws as possible.

3. The N. A. B. P. shall keep a register of all State Boards that meet these standards and are willing to cooperate with the N. A. B. P.

4. The N. A. B. P. shall issue, without examination, certificates of national registration to any registrant of any State which meets the standards of the N. A. B. P., provided, that if a State refuses to recognize the certificates of the N. A. B. P. for registration in its State, then the registrants of such a State shall be denied national registration; and each registered State Board shall be advised of such action, and act accordingly.

5. The cost of each national certificate issued by the N. A. B. P. shall be nominal, say, one dollar.

6. The N. A. B. P. certificates shall be registered by each State Board registered by the N. A. B. P., at such fees for registration as each individual State Board may ask of the registrant, preferably large enough to cover both the regular fees for examination and registration of the State.

7. If the Pharmacy Law of a State does not give its Board of Pharmacy the authority to register the registrant of another State without examination, then it is suggested that amendments to the law be secured by the State Board permitting the registration of ex-state registrants without examination, under rules and regulations to be framed by the State Board; and the way would then be opened for the State Board to cooperate with the National Association of Boards of Pharmacy.

8. The N. A. B. P. should have instead of a Secretary-Treasurer (as now), a Permanent Secretary, preferably residing at Washington, D. C., who should be the Executive officer of the Board, subject to the control of the Board. It should have, also, a Treasurer.

9. All moneys received for certification by the N. A. B. P. should be turned over by the Secretary to the Treasurer at least once a month, and used for promoting the standardization of pharmacy laws and the betterment of pharmaceutical education, in whatever way the Board may deem best.

It will be especially noted that the movement here proposed is not to supersede the work of the State Boards of Pharmacy in any way; it is simply to supplement their work, and provide a more ready means of exchanging state certificates than can be had by a direct exchange with each one of the 52 different states and dependencies. It would make the State certificates more valuable by making reciprocal registration most easy.

In addition the movement would standardize the conditions of examination and registration by the State Boards, and render possible all the good effects that would flow from a National Pharmacy law, without any of its disadvantages.

If the medical profession, with all its wonderful machinery, finds it impossible (as it does) to get a National Medical Law through Congress, how much more difficult would it be for Pharmacy to secure a national law?

Apart from this, it is open to grave doubt whether a national pharmacy law and the abolition of the State pharmacy laws would be a wise procedure. Pharmacy laws are in the nature of police legislation, and certainly, in matters of pharmacy, at least, each State is most competent to pass judgment as to what it needs in pharmaceutical legislation.

There is room both for the State Boards and the N. A. B. P. The former are necessary for the pharmaceutical police work of each State, and the latter is essential to give flexibility to the State Certificates by permitting the holders thereof to practice pharmacy in any one or all of the different states of the Union.

The officers of the N. A. B. P. are: William Mittelbach, Boonville, Mo., President; L. P. Gammon, First Vice President, Boston, Mass.; H. C. Shuptrine, Second Vice President, Savannah, Ga.; Miss Kittie Harbord, Salem, Ore., Third Vice President, and A. F. Sala, Secretary-Treasurer, Winchester, Ind. Very truly yours, J. W. ENGLAND.

Mr. Frank H. Freericks moved, and J. H. Beal seconded, that a committee of five, one from each association be appointed to take up the Harrison and other bills with a view of agreeing upon some compromise if possible, and that the Committee inform Dr. Hamilton Wright of its intended work.

Mr. Woodruff moved as a substitute that the Harrison Bill introduced January 14, be made the special order for tomorrow at 10 A. M. and that it be then considered section by section.

Seconded by C. M. Kline, and, rising vote being taken, duly carried by a vote of 7 to 6.

The appointment by Mr. Frank H. Freericks of Mr. Fred A. Hubbard, of Boston, to act as his alternate during the remaining sessions was then presented and accepted.

The Committee on Resolutions then presented the following which on motion and second was unanimously adopted and the Secretary was instructed to send a copy to Hon. Burton Harrison.

"The National Drug Trade Conference in session in Washington, D. C., this fifteenth day of January, 1913, herewith submit by unanimous resolution that this Conference is heartily in favor of Federal Legislation of such a nature as to bring under control the importation and the interstate traffic in so called habit-forming drugs in such a manner as to prevent their illegitimate use, without placing unnecessary burdens upon the manufacturer, jobber, retailer, physician, or veterinarian."

On motion the Conference then adjourned to meet at the same place Thursday, January 16, at 10 o'clock A. M.

(Fourth Session.)

Thursday morning, January 16, 10 A. M.

Conference called to order by the Chairman, Mr. John C. Wallace.

Mr. George C. Hall presented his credentials as alternate of Mr. R. C. Stofer, delegate from the American Association of Pharmaceutical Chemists, who was unable to remain at the Conference.

On motion of J. H. Beal, seconded by C. M. Kline of the American Pharmaceutical Association, the Conference proceeded to the election of three members who with the President and Secretary should constitute the Executive Committee.

J. H. Beal, of the American Pharmaceutical Association, Mr. C. M. Kline, of the National Wholesale Druggists Association, Mr. Willard Stearns, of the American Association of Pharmaceutical Chemists, and Mr. James F. Finneran, of the National Association of Retail Druggists, were duly nominated.

The President appointed Wm. C. Anderson, of the National Association of Retail Druggists, as judge of the election and Mr. Adolph G. Rosengarten, of the National Association of Manufacturers of Medicinal Products, and Mr. Fred A. Hubbard, of the National Association of Retail Druggists, as tellers.

A ballot being taken it was announced that J. H. Beal had received 11 votes, C. M. Kline 12 votes, Willard Stearns 5 votes, and James F. Finneran 8 votes.

The President then announced J. H. Beal, Mr. C. M. Kline and Mr. James F. Finneran duly elected as members of the Executive Committee.

On motion made by J. H. Beal and seconded by W. C. Abbott, the President of the Conference was made Chairman of the Executive Committee.

The Conference then proceeded to the order of the day and took up the consideration of the Harrison Bill introduced January 14, 1913, known as Bill No. 28023; during which discussion Dr. M. I. Wilbert offered a suggestion respecting a coupon order scheme in lieu of the subsidiary stamp and record features of the bill.

On motion of G. C. Hall, seconded by Wm. C. Anderson the word "dispenses" was inserted after the word "sells" in line 7, page 1.

On motion of C. M. Kline, seconded by J. F. Finneran the words "any of" were inserted after the word "away" in line 8, page 1.

On motion of C. M. Kline, seconded by W. C. Abbott the special tax of $100 was reduced to $50, and the special tax of $5 to $1.

C. M. Kline moved that the sentence beginning with the word "every" in line 17, page 2 be made to read: "Every person who engages in the cultivation of the opium poppy or coca plant in the United States of America for the manufacture of opium or cocaine shall be regarded as a producer."

Seconded and carried.

C. M. Kline moved that the words "or its equivalent in solid or semisolid" be inserted after the word liquid in line 9, page 3 and that the following word "preparation" be made plural.

Seconded and carried.

Wm. C. Anderson moved that the following be inserted after the word "jobber" in line 13, page 3. "Provided, that nothing in this act shall prohibit sales by retailers on written order to physicians, dentists and veterinarians, hospitals, colleges, scientific or public institutions of any of the foregoing drugs in any quantity, or the compounding of prescriptions of physicians, dentists or veterinarians duly registered under this act."

Seconded and carried.

Wm. C. Anderson moved that the phrase in line 13, page 3, reading "every other person who sells or gives away" be made to read: "Every other person who manufacturers, compounds, sells, dispenses or gives away."

Seconded and carried.

A. G. Rosengarten moved that the word "special" be inserted before the word tax in line 23, page 3.

Seconded and carried.

G. C. Hall moved that the words "less than $100 nor" be deleted from line 6, page 4; and that the words "less than $25 nor" be deleted from line 12, page 4.

Seconded by J. H. Beal and carried.

Wm. C. Anderson moved that the phrase "Every person who sells or gives away" in line 7 on page 4 be made to read: "Every person who manufactures, compounds, dispenses, sells, deals in, distributes, or gives away."

Seconded and carried.

J. H. Beal moved the adoption of the following resolution:

Resolved, That a special committee be appointed to draft a section providing for the use of coupon orders or stamps for the identification of licensed dealers, etc., to be recommended by this Conference for insertion in H. R. 28023 in lieu of the provisions of the latter requiring the affixing of identification stamps on subdivided package of the drugs therein named.

Seconded by Dr. Wm. C. Abbott.

J. H. Beal moved that M. I. Wilbert, the representative of the American

Medical Association, having suggested the plan, be invited to meet and counsel with the Committee.

Seconded by Mr. C. M. Kline.

Carried.

The President appointed the following to constitute the foregoing committee:

J. H. Beal.
A. R. L. Dohme.
C. M. Kline.
William C. Anderson.
H. A. Stiles.

Having retired and considered the matter the Committee returned and reported the following to be inserted in lieu of all from and including line 21, page 5, to and including line 14 on page 6:

"Provided, That where such original drugs, to wit, opium and coca leaves, after payment of the revenue taxes thereon, are subdivided, further manufactured, compounded or sold by any person who has paid the special revenue taxes imposed by this act, the same may be disposed of to dealers registered under this act, on the presentation of a duly authorized order on a blank provided by the Commissioner of the Internal Revenue and sold by him in blank duplicate form to the registered wholesale or retail dealers in any given Internal Revenue district. And every wholesale or retail dealer shall be required to preserve a true copy of the completed order for two years and every wholesale dealer shall preserve the orders received by him for a period of two years arranged in such a way as to be readily accessible to inspection by duly authorized Federal or State authorities."

On motion duly seconded and carried the recommendation was adopted.

A. G. Rosengarten moved that the words "in lieu of the" in line 4, page 7 be stricken out and the words "of equivalent value to the" be inserted instead thereof, and the words beginning with and including "those" in line 6, page 7 and all words in lines 7, 8, 9 and 10, page 7 be striken out.

Seconded and carried.

A. G. Rosengarten moved that the "labels and marks" in lines 17 and 18, page 7, be stricken out and the words "revenue tax stamps" inserted in lieu thereof.

Seconded and carried.

Wm. C. Anderson moved that the entire Section 3 be striken out.

Seconded and lost.

C. M. Kline moved the word "producing" be inserted after the word "preson" in line 22, page 7.

Seconded and carried.

J. H. Beal moved that the words "and give such bonds" in line 1, page 8, be stricken out, and that the words "regarding his or their purchases of the aforesaid drugs, their salts, derivatives or preparations" be inserted in lieu thereof.

Seconded and carried.

A. G. Rosengarten moved that in line 18, page 8 a colon be put after the word "preparations," and the following added "provided, further, that nothing contained in this section shall apply to the delivery of prescriptions of physicians,

dentists or veterinarians duly registered under this act compounded by a person duly registered under this act.

Seconded and carried.

On motion duly seconded and carried the words "marks and labels" in line 1, page 9, and the words "and the labels and marks" in line 6, page 9, were stricken out.

On motion duly seconded and carried the words "deals in, distributes, dispenses" were inserted after the word "transfers" in line 9, page 9.

C. M. Kline moved that section 6 be further amended by striking out the words "or to which the labels or marks imposed by this Act have not been affixed" in lines 12 and 13, and the words "or any regulation issued thereunder" in lines 14 and 15, and the words "less than $100 nor" in lines 15 and 16, and make the fine "$5000" in line 16 read "$2000," and by striking out the words "less than one year nor" in lines 16 and 17.

Seconded and carried.

The Conference then adjourned for lunch until 2 o'clock P. M.

The Conference reconvened at 2 o'clock P. M.

Mr. Charles A. West, of Boston, stated he had been in conference with Dr. Hamilton Wright, and announced several concessions he had obtained from Dr. Wright, and left to entrain for Boston; whereupon it was moved, seconded and carried that the Conference proceed to finish its consideration of the bill and take up the amendments offered by Mr. West later.

Mr. C. M. Kline moved that the phrase in lines 2 and 3, page 12, reading, "persons making sales, distribution or disposition" be stricken out and the words "the manufacture, compounding, sale, giving away, distribution or dispensing" be substituted.

Seconded and carried.

Mr. Fred A. Hubbard moved that the word "one-fourth" in line 5, page 12, be made to read "one-third."

Seconded and carried.

J. H. Beal moved that the words "nor to powder of ipecac and opium commonly known as Dover's powders" be stricken out, and that the word "or" immediately following be made to read "nor."

Seconded by W. C. Anderson and carried.

Mr. C. M. Kline moved that the words "or other preparations" be inserted after the word "ointment" in line 9, page 12.

Seconded and carried.

Dr. Wm. C. Anderson moved that the phrase "sold, distributed or disposed of" in line 11 be made to read "manufactured, compounded, sold, given away, distrbuted or dispensed."

Seconded and carried.

The Conference then took up the amendments suggested by Mr. Charles A. West and Mr. C. M. Kline moved that the amendment changing the special stamp tax of $100 to $25 be accepted in lieu of the change the Conference had already adopted.

Seconded and carried.

Mr. G. C. Hall moved that the definition of producer as proposed by Dr. Wright be adopted.

Seconded and carried.

The definition is as follows:

"Every person who engages in the cultivation of the poppy plant for the production of opium, its salts or derivatives or in the cultivation of the coca plant for the production of cocaine, its salts or derivatives in the United States of America, shall be regarded as a producer."

Dr. Wm. C. Anderson moved the adoption of the suggestion that the words beginning with and including "every" in line 13, page 3 and ending with and including "retailer" in line 15, page 3, and the substitution therefor of the following:

"Provided further, That the foregoing definition of wholesale dealer or jobber and the special tax relating thereto shall not apply to the retailer as hereinafter defined in the manufacture and compounding of preparations of opium, and coca leaves, their salts, preparations and derivatives, for sale to consumers and other retailers; nor to the sale of opium, coca leaves, their salts, derivatives or preparations to hospitals under the supervision of a person duly registered under the provisions of this act, nor to scientific institutions; nor shall such definition apply to persons qualified by state or territorial law, or the laws of the District of Columbia, to prescribe, dispense or use in the practice of their professions any of the aforesaid drugs, and who are registered under the provisions of this act. Every person qualified by State or territorial law, or by the laws of the District of Columbia, to manufacture, compound, sell, give away, prescribe, dispense or use in the practice of his profession any of the aforesaid drugs, their salts, derivatives or preparations, shall be regarded as a retailer."

Seconded and adopted.

Dr. Wm. C. Anderson moved that the suggestion that the words "or dispensing" be stricken out of line 24, page 7, be not concurred in.

Seconded and carried.

Mr. Fred A. Hubbard moved that the suggestion that the words "retail manufacturers and dispensers" in line 6, page 10, be stricken out and the words "and retailers" inserted be accepted.

Seconded and carried.

Dr. W. C. Abbott moved that the suggestion that all after word "Act" (the word act exclusive) in the first paragraph on page 11 be stricken out, be accepted.

Seconded and carried.

Dr. A. R. L. Dohme moved that the suggestion that the word "words" in line 14, page 11, be changed to read "names" be accepted.

Seconded and carried.

The President then appointed Dr. Wm. C. Abbott to get in touch with Mr. Harrison and Dr. Wright and inform them that the Conference was ready to report what changes they asked in the bill.

Mr. H. A. Stiles moved that the Committee on Ways and Means be asked to suggest some provision to protect honest dealers from careless or malicious

clerks who might, notwithstanding specific instructions from employers, sell opium, etc., contrary to the provisions of the act.

Seconded and carried.

Dr. A. R. L. Dohme moved that the Secretary be instructed to print the minutes and Constitution of the Conference and send a copy to each of the delegates, the expense to be pro rated among the Associations represented.

Seconded by Prof. J. H. Beal and carried.

The Secretary moved and Prof. J. H. Beal seconded the adoption of the following resolutions:

"WHEREAS, The Conference has been organized to secure uniformity in State and Federal laws relating to the adulteration and misbranding of drugs, and

WHEREAS, Such uniformity is now being sought by the Commission on Uniform Laws and also by the American Bar Association, and

WHEREAS, The American Bar Association has recommended that such uniformity be secured by the various states conforming their laws to the federal act, and

WHEREAS, Further hasty state and federal legislation respecting the adulteration and misbranding of drugs will add to the confusion now existing, therefore, be it

Resolved, That this National Drug Trade Conference earnestly recommend that no new laws relating to the adulteration and misbranding of drugs be enacted by any State during the present session of its legislature, unless its purpose be to bring the law in conformity with the federal law; and be it further

Resolved, That this Conference recommend that the federal law should not be amended prior to the publication of the new revisions of the United States Pharmacopœia and National Formulary lest greater lack of uniformity be effected."

Adopted.

Dr. W. C. Abbott then announced that Mr. Harrison and Dr. Wright would meet the Conference at 9 o'clock P. M. Whereupon the hour being 7:30 P. M. and the Conference having been in continuous session since 2 P. M. on motion duly seconded and carried the Conference adjourned until 9 o'clock P. M.

(Fifth Session.)

Conference called to order, Jan. 17, at 9 o'clock P. M.

Hon. Burton Harrison and Dr. Hamilton Wright appeared and were introduced to the Conference by its President.

Dr. Wright explained his proposed amendments which were duly discussed, and the acceptance of most of them announced by the Secretary in accordance with the previous action of the Conference.

At about 10:45 P. M. Mr. Harrison excused himself, stating he had left Mrs. Harrison at the theatre, and that if he did not return she would conclude that he had taken a fatal dose of some narcotic.

After Mr. Harrison had retired, the Conference presented its amendments to Dr. Wright and proceeded until the proposed substitute of the certified order plan for the labels or marks on subdivided packages, compounds, etc., was reached, when Dr. Wright tried to convince the Conference that this was impossible and left the Conference, stating that if the Conference wanted to see him the next day, they could call upon him at the State Department any time after 10 o'clock.

After remarks by Prof. J. H. Beal, Mr. A. G. Rosengarten, Mr. C. M. Kline, Dr. W. C. Abbott, Mr. M. I. Wilbert, and nearly all the delegates it was decided without dissent that the Conference should insist upon the amendments requested.

Dr. A. R. L. Dohme moved and Prof. J. H. Beal seconded that a committee of five be appointed to remain over, have a complete copy of the Conference's bill prepared, effect a meeting with Mr. Harrison and represent to him that the Conference could not support the measure that bore his name unless his bill introduced January 14, 1913, and known as number 28023 was amended as the Conference had agreed.

Carried unanimously and enthusiastically.

The President of the Conference asked consent to name M. I. Wilbert as one of the Committee, although he was not a member of the Conference.

Mr. Wilbert suggested that this was not necessary; that he would accompany the Committee and act as an advocate the same as he had acted as an advisor in framing the contested provision.

The President of the Conference then appointed the following Committee to attend the Conference with Mr. Burton Harrison:

Mr. Charles M. Woodruff.
Mr. Adolph G. Rosengarten.
Mr. C. M. Kline.
Mr. James F. Finneran.
Dr. W. C. Abbott.

Dr. J. H. Beal moved that the sense of the Conference was that it should have a meeting once a year, preferably at the beginning of the legislative sessions.

Seconded by Dr. W. C. Abbott and carried.

Mr. H. C. Stofer moved a vote of thanks to the officers of the Conference for the efficient and faithful manner in which they had performed their functions.

Seconded and carried.

Thereupon, on motion of Dr. J. H. Beal, seconded by Dr. W. C. Abbott the Conference adjourned to meet at the call of the President, in accordance with the rules of the Conference.

C. M. WOODRUFF,
Secretary.

Reports of A. Ph. A. Committees

REPORT OF COMMITTEE ON UNOFFICIAL STANDARDS.

GEO. M. BERINGER, PH. M., CAMDEN, N. J., CHAIRMAN.

During the past year there was prepared a list of the articles entering into the formulas that had been admitted in the revision of the National Formulary. As the work on the revision of the National Formulary has progressed, several such lists were submitted by members of that committee, but they were necessarily incomplete. After the Boston meeting, the scope of the N. F. IV could be considered as practically established so far as additions and deletions and the tentative formulas for the new preparations. A review of the entire correspondence on the National Formulary in the Bulletin of the American Pharmaceutical Association and the circular letters of the Committee was necessary in order to compile a list that would exhibit the work still required of the Committee on Unofficial Standards in their assigned duty to cooperate with the National Formulary committee in the establishing of standards for the non-pharmacopœial articles used in the Formulary.

On the basis of this compilation, the new assignment of subjects to the individual members of our Committee for special study and report was made. The work accomplished in the past year of the Association is, in part, represented by the forty-five monographs that have been approved by the Committee and which are presented herewith for publication. There are still a number of reports before the Committee on which the discussions have not yet progressed to a conclusion. In addition, a number of the assigned subjects are still under study by the referees.

The work accomplished has not measured up to our anticipation, and it is but fair to the members to offer in extenuation some explanation.

A study of the reports submitted by this Committee will exhibit the wide range of subjects that have to be considered, coming from all quarters of the globe, and from the animal, vegetable and mineral kingdoms. For some of these articles, authoritative statements may be found in the foreign pharmacopœias, which, after confirmation by a referee, may serve as the basis for our standards. However, many more of the articles that we have to consider are not mentioned in any of the pharmacopœias and the work on standards for such must be largely based upon examination of the commercial products used. These require much study, investigation and experimentation.

It is probable that in the desire for accuracy, the referees have, in many cases, gone into details and extensive studies that may not be considered necessary for

our work, but just such conscientious labor is required if the standards that we propose are to be adopted and become the legal authority.

The members of this Committee are all actively engaged in other duties, and so can spare but a portion of their time to the assignments in connection with this work. Ten of our members have been drafted into the Committee of Revision of the United States Pharmacopœia and four of these are chairmen of important sub-committees and members of the Executive Committee of the Committee of Revision. Hence, it will be understood how these other demands on time and energy have interfered with the anticipated progress in the establishing of standards for non-pharmacopœial articles. Nevertheless, we hope that the special work relating to the National Formulary standards may be completed by the time such will be needed for the publication of the revised edition of the Formulary.

As the scope of the U. S. P. IX was gradually decided upon, it became more and more apparent that a number of the articles our Committee had under consideration, and for some of which we had already adopted standards, would be included in the Pharmacopœia. By a happy coincidence, much of this work in the pharmacopœial revision fell upon members of our Committee who had already considered these topics, and thus their previous labors will aid in expediting the revision of the Pharmacopœia. This is but another illustration of the close relationship that exists between the work of the Pharmacopœial Revision Committee, the Committee on National Formulary and the Committee on Unofficial Standards, and emphasizes the necessity for cooperation of these several committees and the need for harmonizing the standards that each establishes.

The terms of the following members expire this year by limitation: Henry Kraemer, Eustace H. Gane, B. L. Murray and W. A. Puckner, and it is incumbent upon the Council to elect their successors. Changes in the personnel of the Committee should be avoided, as each change causes interruption and delay in the progress of the work, and, unless necessary, change is undesirable. The Council must likewise designate the chairman for the ensuing year.

If it be the desire of the Council that this Committee be continued, then sufficient appropriation must be made to meet the expenses of the coming year, and I recommend that a sum of $250.00 be placed at the command of the Committee on Standards for Unofficial Drugs, Pharmaceutical Preparation and Chemical Products to meet the expenses necessitated by their work.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed

standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

ALETRIS.

True Unicorn Root, Colic Root, Star Grass.

1. The dried rhizome and roots of *Aletris farinosa* L. (*Fam. Liliaceae*). Rhizome horizontal or slightly oblique, nearly cylindrical or laterally compressed above, from 2 to 4 cm. in length, 5 to 12 mm. in diameter; externally grayish brown, upper portion with circular stem scars from 3 to 7 mm. in diameter and with numerous leaf bases, the sides and lower portion with numerous tough, wiry, whitish or reddish brown roots which are more or less flexuose and provided with short branches; fracture short; internally light brown, cortex 1 to 2 mm. thick, central cylinder with numerous circular twisted and branching fibrovascular bundles; odor slight, acetous; taste sweetish, somewhat bitter.

2. Microscopic Examination.—The greater part of the drug consists of parenchyma cells which are filled with spherical or ellipsoidal starch grains, varying from 8 to 16 microns in diameter. Some of the parenchyma cells contain raphides, the latter being from 25 to 45 microns in length. The tracheæ are reticulate or provided with simple pores and around these are several layers of lignified cells with thick walls and simple large oblique pores. The endodermis is composed of several layers of thick walled and closely lamellated cells of a deep yellow color and the cortex is readily separated.

AMMONIACUM.

Ammoniac.

1. The air dried gum resinous exudation from the stems of *Dorema Ammoniacum* Don. (*Fam. Umbelliferae*) and other species of Dorema growing in Persia and neighboring countries.

2. In roundish tears from 2 to 6 mm. or more in diameter, externally pale, yellowish brown, internally milk white, brittle when cold and breaking with a flat conchoidal and waxy fracture; or the tears are superficially united into irregular masses without any intervening dark colored substance. Odor peculiar, taste bitter, acrid and aromatic. It softens on warming without completely melting. Partly soluble in water and alcohol.

3. On boiling with 10 parts water it forms a turbid liquid which is colored a dirty violet by ferric chloride T. S.

4. On fusing with alkali it yields resorcin.

5. On complete extraction with boiling alcohol, filtering, and drying the residue at 100° C., not more than 40 percent. of insoluble matter should remain. The ash should not amount to over 7.5% and moisture 2.5-12%.

6. If five grams finely broken, be boiled for one-fourth hour with 15 Cc. hydrochloric acid and filtered, the clear filtrate should not become fluorescent on adding excess of ammonia water (absence of galbanum and gum resin of Ferula tingitana or African ammoniacum).

AMMONII ICHTHYOSULPHONAS.

Ammonium Ichthyosulphonate.

1. Ammonium ichthyosulphonate is an aqueous solution, the solids of which consist largely of the ammonium salts of sulphonic acids, which latter have been prepared by sulphonating the tar-like distillate obtained from certain bituminous shales which contain the fossil remain of fishes.

2. Ammonium ichthyosulphonate is a reddish-brown to brown-black, syrupy liquid having a characteristic empyreumatic odor and burning taste.

3. It should be completely soluble in water; incompletely soluble in alcohol or ether but nearly soluble in a mixture of equal volumes of alcohol and ether; also soluble in a mixture of equal volumes of alcohol, water and ether. It is miscible with glycerin, oils and fats.

4. The aqueous solution of ammonium ichthyosulphonate (1-10) has a faintly acid reaction upon blue litmus paper.

5. The aqueous solution of ammonium ichthyosulphonate (1-10) yields a greenish-black, resin-like precipitate upon the addition of hydrochloric acid. This precipitate is nearly insoluble in ether; it is partially soluble in alcohol; soluble in water but if dissolved in the latter solvent it may again be precipitated from solution by the addition of hydrochloric acid.

6. With barium chloride T. S. the aqueous solution of ammonium ichthyosulphonate (1-10) gives a brownish-black precipitate

which is insoluble in diluted hydrochloric acid.

7. If the aqueous solution (1-10) be boiled with potassium hydroxide T. S. ammonia should be evolved.

8. Ammonium ichthyosulphonate is incompatible with acid and saline solutions, fixed alkalies, their carbonates and iodides, alkaloidal salts and mercuric chloride.

9. If 1 Gm. of ammonium ichthyosulphonate be ignited it should leave not more than 0.001 Gm. of residue. If 10 Gm. of ammonium ichthyosulphonate be diluted with 90 Cc. of water, the mixture placed in a glass-stoppered cylinder and allowed to remain undisturbed for 24 hours, no deposit should form.

10. If dried at 100° C. (212° F.) ammonium ichthyosulphonate should not lose more than 47.0 percent. of its weight (absence of an undue amount of *water*).

11. If from 5 Gm. to 6 Gm. of ammonium ichthyosulphonate be weighed into a flask, 25 Cc. of potassium hydroxide T. S. and 100 Cc. of water added, the mixture distilled until no more ammonia passes over, the distillate collected in 15 Cc. of normal sulphuric acid V. S. to which 1 drop of methyl orange T. S. has been added, and the excess of acid then titrated with tenth-normal potassium hydroxide, V. S., the amount of normal sulphuric acid consumed should correspond to from 2.9 percent. to 3.4 percent. of total ammonia (NH_3).

12. If from 5 Gm. to 6 Gm. of ammonium ichthyosulphonate be weighed into a beaker, diluted with 50 Cc. of water, 10 Cc. of a 10 percent. solution of albumen added, followed by 5 portions of 5 Cc. each of diluted hydrochloric acid, shaking after each addition, the mixture made up to a volume of 500 Cc. and filtered through a dry filter, and if 200 Cc. of the filtrate be heated to boiling, 10 Cc. of barium chloride T. S. added, the mixture allowed to stand for 24 hours, the precipitate of barium sulphate collected, ignited and weighed in the usual way, the weight of barium sulphate obtained should correspond to from 5.7 percent. to 6.2 percent. of ammonium sulphate.

13. If from 0.5 Gm. to 1 Gm. of ammonium ichthyosulphonate be weighed into a Kjeldahl flask, diluted with 20 Cc. of water, 5 Gm. of potassium chlorate added, followed by 30 Cc. of nitric acid, the mixture evaporated to about 5 Cc., 25 Cc. of hydrochloric acid added, this solution evaporated to about 5 Cc., 25 Cc. of hydrochloric acid again added, this solution evaporated to about 5 Cc., 100 Cc. of water added, the solution heated to boiling, 10 Cc. of barium chloride T. S. added, the mixture allowed to stand for 24 hours, the precipitate of barium sulphate collected, heated and weighed in the usual way, the weight of barium sulphate should correspond to at least 10 percent. of total sulphur.

14. If the ammonia contained in the ammonium sulphate as previously determined in ammonium ichthyosulphonate be calculated, and the result subtracted from the "total ammonia" as previously determined, the remainder should represent the ammonia combined with the "organic sulphuric acids." If this value be multiplied by 1.88 the result should represent the sulphur present in the sulphonic acids in an oxidized state, i. e., "sulphonic sulphur."

15. If the sulphur contained in the ammonium sulphate as previously determined in ammonium ichthyosulphonate be calculated, and the result subtracted from the "total sulphur" as previously determined, the remainder should represent the sulphur present in the organic-sulphonic acids contained in the substance.

16. If the "sulphonic" sulphur in ammonium ichthyosulphonate as previously calculated be subtracted from the sulphur in the organic sulphonic as previously calculated, the remainder should correspond to at least 5.5 percent. of "organic" ("sulphidic") sulphur.

AMMONII PHOSPHAS.

Ammonium Phosphate.

1. A mixture, in somewhat varying proportions, of diammonium hydrogen phosphate [$(NH_4)_2HPO_4$=132.13] and ammonium dihydrogen phosphate [$NH_4H_2PO_4$=115.09]. It should contain not less than 98 percent. of these two salts and not less than 20 percent. of combined ammonia (NH_3). It should be kept in well-stoppered bottles in a cool place.

2. Colorless crystals, or a white crystalline powder, which lose ammonia on exposure to the air.

3. Soluble in about 4 parts of water, insoluble in alcohol. The aqueous solution (1:20) is alkaline to litmus paper.

4. Separate portions of the aqueous solution (1:20) yield with magnesia T. S. a white precipitate, with silver nitrate T. S. a yellow

precipitate, and upon warming with ammonium molybdate T. S. a yellow precipitate.

5. A clear solution should result on dissolving 1 Gm. in 20 Cc. of water (limit of *calcium, aluminum, etc.*).

6. The aqueous solution (1:20) should not respond to the U. S. P. VIII Time Limit Test for *heavy metals.*

7. If 5 Cc. of the aqueous solution (1:20) be evaporated with 2 Cc. of nitric acid to dryness on the water bath, the solution of the residue in 5 Cc. of water should not respond to the U. S. P. VIII Modified Gutzeit's Test for *arsenic.*

8. An aqueous solution of the salt (1 in 100) acidulated with nitric acid should not be rendered more than slightly opalescent by silver nitrate T. S. (Limit of chlorides).

9. Weigh about 0.2 Gm. of the salt, dissolve it in 25 Cc. of water in a 200 Cc. volumetric flask, and add 100 Cc. tenth-normal silver nitrate V. S. Shake thoroughly for a few minutes, then add zinc oxide (free from chloride) in small successive portions, shaking vigorously after each addition, until the mixture is no longer acid to litmus paper. Dilute the contents of the flask to 200 Cc. with water, mix thoroughly, and filter at once. Strongly acidulate with colorless nitric acid 100 Cc. of the filtrate which represents one-half of the ammonium phosphate taken, and titrate the excess of silver nitrate with tenth-normal potassium sulphocyanate V. S., using ferric ammonium sulphate as indicator. Each Cc. of tenth-normal silver nitrate V. S. corresponds to 0.003269 Gm. of phosphoric acid (H_3PO_4).

10. Dissolve about 1.5 Gm. of the salt accurately weighed, in about 300 Cc. of water, add about 50 Cc. of 25 percent. sodium hydroxide solution, and distill the liberated ammonia into an excess of normal hydrochloric acid solution. Titrate the excess of acid with normal sodium hydroxide V. S., and calculate the percentage of ammonia (NH_3). The combined percentages of ammonia and of phosphoric acid found should represent not less than 98 percent. of ammonium phosphates.

ANTIMONIUM SULPHURATUM.

Sulphurated Antimony.

(Antimonium Oxysulphuratum Rubrum. Kermes Mineral.)

1. Chiefly antimony trisulphide [Sb_2S_3= 336.2] with small quantities of antimony trioxide, sodium pyroantimonate, and free sulphur. It should contain not less than 45 percent of antimony. as determined by the method given below. It should be kept in well-stoppered bottles, protected from light.

2. A red-brown powder, becoming lighter in color on exposure to light, odorless and tasteless. Insoluble in water and in alcohol. One Gm. on warming with 10 Cc. of hydrochloric acid dissolves with the evolution of hydrogen sulphide, leaving a small residue composed chiefly of sulphur. The hydrochloric acid solution, after removal of hydrogen sulphide by heating the solution, yields a white precipitate when greatly diluted with water; the liquid separated from this precipitate yields an orange-red precipitate with hydrogen sulphide.

3. After shaking about 1 Gm. of Sulphurated Antimony with 20 Cc. of water, the filtered liquid should be neutral to litmus, remain clear on the addition of ammonium oxalate, and not become more than slightly turbid on the addition of barium chloride.

4. Boil 1 Gm. of Sulphurated Antimony with 100 Cc. of water until the volume is reduced to about 10 Cc. filter, and wash the residue thoroughly with water. The combined filtrate and washings, after evaporation to about 1 Cc., should not respond to Bettendorf's test for arsenic (U. S. P. VIII).

5. If about 1 Gm. Sulphurated Antimony accurately weighed be mixed with 20 Cc. of hydrochloric acid and a clear solution of 5 Gm. tartaric acid in 20 Cc. of water, the mixture heated on a water-bath until the vapors no longer blacken lead acetate test paper and filtered and the residue washed until the washings are neutral to litmus and dried at 100° C. the weight of this residue should not exceed 4 percent., and it should burn with the odor of sulphur dioxide, leaving not more than 0.2 percent. of ash.

6. Dilute the combined filtrate and washings from the preceding test to 100 Cc. Neutralize 25 Cc. of the solution with sodium carbonate, add 25 Cc. of a cold saturated solution of sodium bicarbonate, and at once titrate with tenth-normal iodine V. S., using starch solution as indicator. Each Cc. of the tenth-normal iodine solution corresponds to 0.00504 Gm. of Antimony (Sb.).

ARALIA RACEMOSA.

American Spikenard. (Spignet.)

1. The dried rhizome and roots of *Aralia*

racemosa Linné (*Fam. Araliaceae*), with not more than 5 percent. of adhering stem bases.

2. Rhizome of oblique growth, about 12 cm. long and 5 cm. thick, somewhat flattened, tortuous, pale-brown, somewhat annulately roughened, of fibrous fracture, frequently cut longitudinally, whitish internally; nodes approximate, each with a prominent stem about 3 cm. broad; roots numerous, of various lengths, from 5 to 25 mm. thick, usually cut longitudinally and furrowed, sometimes with transverse ridges and corky patches, light-brown or purplish-brown externally, whitish and spongy or porous internally; fracture of the cortex short, of the wood short and fibrous; odor aromatic, taste mucilaginous, pungent and slightly acid.

3. A transverse section of the root examined microscopically shows a thick bark with several zones of secretion reservoirs containing oil, a well-developed cork with one or more hypodermal layers of lignified cells, and a more or less distinctly radiate wood.

4. A microscopic examination of the powdered drug reveals spherical or angular single or two or more compound starch grains from 5 to 20 microns in diameter, rosette aggregates of calcium oxalate from 30 to 70 microns in diameter, tracheæ with scalariform or reticulate thickenings and simple or bordered pores, characteristic lignified cells from the hypodermis about 40 to 100 microns long and about one-half as broad, their walls showing simple pores. (Distinction from Aralia nudicaulis.)

5. When incinerated, it should yield not more than 10 percent. of ash.

ASARUM.

Canada Snake-root (Wild Ginger).

1. The dried rhizome of *Asarum canadense* Linné (*Fam. Aristolochiaceae*), with only an occasional leaf or flower present.

2. Of horizontal growth, occasionally branched, two-edged when young, quadrangular when older, finely striate, usually more or less twisted, 5 to 17 cm. long and 2 to 4 mm. thick; nodes enlarged with irregular scars from scales; dark-purplish-brown externally; fracture short, whitish internally, starchy or resinous; odor aromatic, non-irritating upon heating; taste pungent and bitter; attached roots few, 5 to 7 cm. long and not over 1 mm. thick, having from 4 to 6 radial fibrovascular bundles.

3. A transverse section of the rhizome examined microscopically shows a thick bark with numerous oil cells, a wood with about 12 fibrovascular bundles and a large pith.

4. The powdered drug, examined microscopically shows simple or two to four compound starch grains 4 to 20 microns in diameter, and tracheæ with scalariform or reticulate thickenings, a few spiral.

5. When incinerated the drug should yield not more than 12 percent. of ash.

BARII PEROXIDUM.

Barium Dioxide. (Barium Peroxide.)

1. Commercial Barium Dioxide, containing not less than 20 percent. (BaO_2=169.39). It should be kept in well-closed vessels.

2. A heavy, grayish white or yellowish white powder, almost insoluble in water, with which it forms a hydrate having an alkaline reaction. Readily decomposed by diluted mineral acids with the production of hydrogen dioxide and the corresponding barium salt.

3. When heated to a bright red heat, Barium Dioxide fuses, loses oxygen, and is reduced to barium oxide.

4. A solution of 0.1 Gm. of Barium Dioxide in 5 Cc. of diluted hydrochloric acid yields a heavy white precipitate upon the addition of a few drops of diluted sulphuric acid (presence of *barium*).

5. Dissolve about 0.2 Gm. Barium Dioxide in 25 Cc. of water by the addition of 25 Cc. of diluted hydrochloric acid (1 in 5). Then add gradually from a burette tenth-normal potassium permanganate V. S. until a permanent pink color remains after agitation. Multiply the number of Cc. of tenth-normal potassium permanganate V. S. consumed by .00847 and divide the product by the weight of barium dioxide taken; the result, multiplied by 100 represents the percentage of pure barium dioxide present.

DRIED BLOOD ALBUMIN.

Serum Albumin.

1. The dried serum of the blood of domestic animals, prepared by desiccation at a low temperature.

2. Yellow to brownish amber transparent or translucent hard and brittle scales or fragments; taste slightly saline; odor not more than that characteristic of blood; on igniting it emits an odor of burned animal matter.

3. It is insoluble in alcohol, chloroform or ether. Slowly and almost completely soluble

in water; the aqueous solution is lævogyrate, the angle of rotation varying from 50° to 62°; on heating the solution the albumin is coagulated and precipitated.

4. Upon incineration it should yield not more than 10 percent. of ash containing iron.

5. The aqueous solution (1 in 10) responds to the following tests; it is not readily precipitated by hydrochloric acid and the precipitate redissolves in excess of acid; it is only slowly precipitated by alcohol in excess; on shaking with an equal volume of ether the solution remains clear, without coagulation. (Difference from Egg Albumin.)

BRYONIA.

Bryony.

1. The dried root of *Bryonia alba* Linné, or of *Bryonia dioica*, Jacq. (*Fam. Cucurbitaceae.*)

2. Occurs usually in circular or elliptical slices, obtained by cutting the root more or less transversely, slices about 1.5 to 10 cm. broad and 3 to 12 mm. thick; the edges light gray or yellowish, rough and striate; the cut surface white or faintly yellow, showing a thin cortex and a wood with numerous projecting collateral fibro-vascular bundles arranged in concentric zones; fracture short and mealy, whitish internally; odor faint but distinct and characteristic; taste bitter and nauseous.

3. The powdered drug is light yellowish and when viewed with the microscope shows single rounded or two or more compound starch grains about 4 to 24 microns in diameter, frequently with a central cleft, tracheæ 35 to 60 microns wide reticulate or with bordered pores, and large yellow cork cells.

4. Upon the addition of sulphuric acid the powdered drug turns first reddish-brown and then purplish.

5. The drug should yield not more than 8 percent. of ash upon incineration.

CALAMINA PREPARATA.

Prepared Calamin. (Lapis Calaminaris.)

1. Native zinc carbonate containing a varying amount of zinc silicate, calcined at a moderate temperature; or artificial calcined zinc carbonate containing a small amount of ferric oxide.

2. A pinkish powder readily passing through a number 100 sieve, insoluble in water, soluble to a large extent in hydrochloric acid with some effervescence.

3. If 1 Gm. of prepared Calamin be digested for one hour on a water-bath with 25 Cc. of diluted hydrochloric acid, the loss by evaporation being replaced with water, the liquid filtered and the filtrate diluted to 100 Cc., 10 Cc. of this diluted filtrate, on addition of potassium iodide T. S., should show no precipitate within ten minutes (limit of lead); 10 Cc. portions of the diluted filtrate, when boiled with a few drops of nitric acid, then boiled with excess of ammonia water and filtered, should give (1) with hydrogen sulphide T. S. an abundant white precipitate (presence of zinc); (2) with excess of hydrochloric acid followed by potassium ferrocyanide T. S. an abundant yellowish-white precipitate (presence of zinc); (3) when diluted with 4 parts of water, slightly acidulated with acetic acid and treated with ammonium oxalate T. S., not more than a slight turbidity (limit of calcium); and (4) when slightly acidulated with hydrochloric acid, and treated with a few cubic centimeters of potassium sulphate T. S., should show not more than a slight turbidity at once (limit of soluble barium salts).

4. The residue insoluble in diluted hydrochloric acid obtained from 1 Gm. of prepared calamin, is fused with 5 parts of anhydrous sodium carbonate, the fused mass treated with water, the mixture filtered and washed, the insoluble portion dissolved in diluted hydrochloric acid and diluted to 100 Cc., 10 Cc. of this dilution should give no immediate turbidity with 2 Cc. of potassium sulphate T. S. (absence of barium sulphate).

CARMINUM.

Carmin.

1. The aluminum lake of the coloring obtained from cochineal. It should be kept in well-stoppered bottles, protected from light.

2. In irregular, angular, bright red masses or powder, without odor or taste. Upon burning, Carmin gives off the odor of burned feathers.

3. Insoluble in water, but completely soluble in ammonia water, forming a dark purplish solution.

4. On ignition, the ash obtained should not exceed 12 percent.

5. On fusing the ash with potassium cyanide, dissolving in concentrated hydrochloric acid and diluting with water, the solution should yield no precipitate with hydrogen

sulphide, nor with sulphuric acid (absence of tin, lead and barium compounds).

CASTANEA.

Chestnut Leaves.

1. The dried leaves of *Castanea dentata* (Marsh.) Borkh. (*Fam. Fagaceae*), collected in September or October, while still green, with which may be admixed not more than 5 percent. of twigs or other impurities.

2. Petioles stout, about 12 mm. long; blades entire or slightly broken and usually folded or matted together; about 15 to 25 cm. long and 5 cm. broad, oblong-lanceolate, the apex attenuate, acute at the base, coarsely and sharply serrate with ascending attenuate teeth, nearly smooth, coriaceous in texture, the upper surface dark green, the lower light green; distinctly pinnately veined, the veins of the first order diverging at angles of about 60°, each terminating in one of the teeth; odor slight; taste astringent.

3. The powdered drug under the microscope shows a few non-glandular hairs about .2 to .5 mm. long, nearly smooth, thick-walled, distinctly yellowish, occasionally in groups of three to eight and spreading from the base; numerous calcium oxalate crystals in rosette aggregates or in monoclinic prisms, 10 to 35 microns in diameter, occasionally in crystal fibers; parenchyma cells containing irregular yellowish-brown tannin masses which are colored blue with ammonio-ferric alum solution.

4. Upon incineration it should yield not more than 5 percent. of ash.

COCILLANA.

1. The dried bark of *Guarea Rusbii* (Britton) Rusby (*Fam. Meliaceae*).

2. In flat or curved pieces of variable size and from 3 to 25 mm. thick; outer surface shallowly or deeply fissured, according to age and thickness, gray-brown, often ashy-gray from lichen growths, or of a deeper brown where the cork has been removed; inner surface of medium brown color, strongly and coarsely longitudinally striate, the striae straight or wavy; inner bark usually much thicker than the outer, its fracture coarse, splintery-fibrous; odor scarcely characteristic; taste slightly astringent, after chewing, peculiar and slightly nauseous.

COFFEA TOSTA.

Roasted Coffee.

1. The dried ripe seeds of *Coffea Arabica* (Linné) *Coffea Liberica* (Bull) (*Fam. Rubiaceae*) and other species of Coffea, roasted until they develop a brown or blackish color and characteristic aroma.

2. The roasted seeds are oval, of variable size, longitudinally grooved upon the flat side and showing traces of the papery endocarp in the cleft. The color varies from a light yellowish brown to almost black, according to the degree to which the roasting process has been carried. The roasted seeds have a characteristic aromatic odor and a pleasant bitter taste. On ignition, roasted coffee should leave not less than 3 nor more than 5 percent. of ash.

3. If one gram of Roasted Coffee in fine powder be percolated with Ether until exhausted and the ethereal percolate evaporated to dryness, the residue should weigh not less than 0.1 gram (presence of at least 10 percent. fat).

4. If one gram of roasted coffee be boiled with 10 Cc. of distilled water, filtered, the filtrate acidified with 1 Cc. dilute Sulphuric Acid and then decolorized by cautious addition of Potassium Permanganate T. S., the decolorized solution should show no blue coloration on addition of iodine T. S. (absence of starch).

5. If roasted coffee berries be shaken for one minute with cold water or alcohol and the berries removed by straining, the separated liquids should show no colored or heavy deposit nor should any color be imparted to the alcohol (absence of colored and mineral facings).

6. For pharmaceutical purposes, a coffee should be selected which has been roasted to a chestnut brown color and which when assayed by the process given under "Thea," yields not less than 1 percent. of caffeine.

(To be continued.)

THE GIFT OF MAKING FRIENDS.

"The man who hails you Tom or Jack,
And proves by thumping on your back
His sense of your great merit,
Is such a friend that one had need,
Be very much his friend indeed
To pardon or to bear it."—*Cowper.*

Report on the Progress of Pharmacy

For the Year 1912

(Eighth Installment.)

Abies Pectinata: *Volatile Oil of the Seeds.*—The receipt of a small parcel of seed from *Abies pectinata* afforded Schimmel & Co. an opportunity of distilling the volatile oil from them direct, whereas ordinarily the seed is worked up together with the cones. As the cones owe their oil principally to the enclosed seeds, it was to be expected that the oil yield from the seed alone would be very high and that the distillate would agree completely in characters with the ordinary oil from the cones, and these anticipations were confirmed; but it was necessary to crush the seeds before placing them in the still, since the uncrushed seeds yielded only 2.3 per cent of oil, whereas the crushed seeds yielded from 12 to 13 per cent. As expected, the constants were those of the oil from cones, ranging within the following limits: Sp. Gr. 15°, 0.8629 to 0.8668; opt. rot., —68° 14′ to —76° 38′; refr. index 20°, 1.47636 to 1.47812; acid val. 0.5 to 1.8; ester val. 0.9 to 3.7, corresponding to 0.3 to 1.3 percent bornylacetate; soluble in 5 to 7 vols. and more of 90 percent alcohol.—Schimmel's Rep., October, 1912; 04.

Agave Fibre: *Conversion into Imitation Horse Hair.*—A patent has been taken out in France for the preparation of imitation horse hair from "esparto" or cleaned agave. It is obtained by digesting 100 kilos of this material for six hours under a pressure of three atmospheres, with a solution consisting of 23 litres of caustic soda of 36°B. and 1500 litres of water. After rinsing the fibres are steeped for fifteen minutes in a bath containing 1 liter of sulphuric acid per 100 liters of water; they are then washed, dried, and put through a carding machine. The "hair" may be bleached by means of a solution of bleaching powder (6 gm. per liter); while curly fibres are obtained by steeping the degummed fibres in a solution of caustic soda at 18°B for about an hour.—Pharm. Journ. and Pharmacist, July 27, 1912, 111; from Journ. Soc. Chem. Ind., April 30, 1912, 381.

Natal Aloes: *Homonataloin a Constituent and its Constitution.*—Klaverness having been unable to find E. Leger's homonataloin in Natal aloes, the latter has reinvestigated the subject, with results that confirm the occurrence of at least two aloins, one of them being homonataloin, the other nataloin. The crude aloins obtained by macerating the aloes (of known origin) in acetone or in 90 per cent alcohol, were separated by fractional crystalization from 60 percent alcohol, the least soluble of the two in that solvent being homonataloin. Yielding arabinose-*d* on hydrolyzation with acid, it would seem probable that homonataloin is a condensation product of this sugar with nataloemodin, but the combustion results do not support this theory. It can be positively stated, however, that the nataloins contain a methylanthraquinone or else nataloemodin and arabinose-*d*, and that the molecule is very unstable.—Journ. de Pharm. et Chim., 1912, 6, 241.

Camphor: *Cultivation and Preparation.*—In view of numerous inquiries of planters regarding the cultivation of camphor, the government of the Federated Malay States has published a treatise by B. J. Eaton, in which the author preliminarily describes the different varieties of camphor, including ordinary camphor from *Cinnamomum Camphora* (the Japanese camphor tree), Borneo camphor from *Dryobalanops aromatica*, and N'gai camphor, from *Blumea balsamifera*; then describes the geographical distribution of the camphor tree and its cultivation in foreign countries, and follows this with an account of the experiments and results obtained in the Malay States. These were first made in 1904 at Batu-Tiga, Selanor, with seed obtained from Yokohama for this purpose. The plants flourished excellently, and in 1909 the first camphor was distilled from the shoots of the five-year-old trees, yielding 1.17 to 1.22 per cent from cut leaves, 1.25 to 1.47 from mouldy leaves, and 0.06 to 0.45 percent from small

stems—the distillate consisting in each case of camphor with very little oil. Repeating the experiment upon a larger scale with parts of an entire tree, the yields were: from leaves, 1 percent; from stems under one-half inch diameter, 0.22 percent; from stems over one-half inch diameter, 0.61 percent; and from roots, 1.10 percent—the latter alone yielding an oil which possessed an odor reminding at the same time of camphor and of lemon. Finally the author gives a review of similar experiments in other countries (Ceylon, India, Germ. E. Africa, Jamaica, West Indies, Italy and America), the results, with the authority, being shown in a table accompanying his treatise.—Schimmel's Rep., Oct., 1912, 28-29; from Bull. No. 15, Dep. of Agricult., Febr., 1912.

Camphor: Distillation from Leaves in Java.—A. W. K. de Jong reports the result of distillation of camphor leaves in Java. From 3560 kilos of green (?) leaves he obtained 31.15 kilos of camphor and 14.1 liters of oil, while 376 kilos of branches (probably without leaves) only yielded a trace of oil. The distillation was conducted with steam of 3 to 5 atmospheres. This was passed through a galvanized iron case, enclosing three cylindrical cooling vessels filled with water, the floor and walls of the case being also washed by cooling water. In the floor of the case was a cock for drawing off the water of condensation. When the distillation was concluded, the cooling vessels were removed from the case and the camphor which had been distilled out was collected.—Schimmel's Rep., October, 1912, 29; from Teysmannia, 1912, No. 2, 125.

Digitalis Leaves: Precaution against Immature Collection.—Caesar and Loretz, referring to the fact that digitalis leaves collected too early in the season possess only half the activity of the leaves from mature plants, state that in consideration of this fact, as well as of the damage to the plants by this immature collection, the forestry authorities in the Harz district have prohibited the collection of the drug before the beginning of July and after the end of September.—Pharm. Ztg. LVII (1912), No. 84,845.

Mustard Seed: Advantageous Method of Estimating the Volatile Oil.—D. Raquet's investigations go to establish the advantage of alcoholic over aqueous maceration in determinations of the volatile oil in mustard seed. Into a 250 cc. flask he placed 5 gm. of the powdered seed with 100 cc. of water and 20 cc. of 90 per cent alcohol. The flask is closed and heated during one hour to a temperature of 30°-35°, or it is allowed to stand for 6 hours with frequent shaking. Distillation is then effected from a glycerin-bath, the distillate being collected in a 100 cc. flask, containing 10 cc. of ammonia of sp. gr. 15°, 0.925, until about 50 cc. has distilled over. The distillate is then diluted with 20 cc. of N/10 silver nitrate solution and, after shaking, the distillation is continued to the 100 cc. mark. The distillate is now heated under a reflux condenser at 80°-85° for one hour, allowed to cool, adjusted to 100 cc., and filtered through chlorine-free paper. Of this filtrate, 50 cc. is titrated as usual with N/10 ammonium sulpho-cyanide solution. If N=the number of cc. used, and 10-N=the number of cc. of N-10 silver solution, then (10-N) P. 198=the quantity of Allyl-isosulphocyanate yielded by 100 gm. of the mustard seed. By this method, English mustard seed was found to contain 1.386 percent; Greek, 1.198 percent; mustard seed from Merville, 1.08 percent; Sicilian, 0.99 percent; Bari mustard seed, 0.99 per cent, and Bombay mustard seed, 0.81 percent of allyl-isosulphocyanate.—Schimmel's Rep., Oct., 1912, Iw; from Ann. Chim. analyt., Appl. 17 (1912), 174, through Chem. Zeutralbl, 1912, 457.

In lieu of the usual methods used in the determination of allyl-isosulphocyanate in preparations of mustard, which he rejects, H. Pénau proposes either to weigh in the form of silver chloride the silver which has entered into the reaction, or to titrate it with decinormal silver solution after adding an excess of cyanide of potash.—Ibid, from Journ. de Pharm. et Chem. VII 6 (1912), 160.

Dalmatian and Montenegrian Insect Powder.—At the October session (1912) of the German Pharmaceutical Society, Juttner gave an interesting description of a journey to Dalmatia and Montenegro, undertaken with the object of studying the methods of collecting the flowers and of preparing insect powder from them. He states that the flowers are collected from wild-growing plants, *Crysanthemum cinerariifolium*, in large territories along the Dalmatian coast, and particularly on the small adjacent islands in the Adriatic, partly in small and partly in large quantities. No effort is made to cultivate the plants, except that now and then, to promote the growth of new plants, some com-

minuted flowers are spread out in localities where wild-growing plants have their habitat. The collectors dispose of the fresh flowers to the dealers, who sun-dry them on mats spread out along the shore of the ocean, and then reduce them to powder for shipment—the principal market for the Dalmatian insect powder being Spalato, and the best quality that prepared from flowers grown on the small Adriatic islands. That grown on the mainland is mostly inferior in quality, while

Montenegrian Insect Powder, which is produced in a limited extent only, has been proven to be of little value, notwithstanding the praise which has often been accorded to it Both kinds of insect powder are exceedingly liable to be adulterated, the principal adulterant being the stems of the plants, which are ground, colored with chrome-yellow, and aromatized with powdered pepper.—Pharm. Ztg. LVII (1912), No. 81,817.

Complementary to the above, Dr. P. Siedler called attention to the adulterants of insect powder and the method of their detection, as well as for the valuation of the genuine drug.—Ibid. 817.

Fresh Valerian: Therapeutic Value.—J. Chevalier observes that the disrepute into which valerian has fallen as a nervous sedative is due entirely to the use of the dried drug. This is practically inert. But the fresh juice of the rhizome is a most valuable preparation. It may be given in doses of one to three teaspoonfuls, either alone or flavored. Since it contains no free valerianic acid, the taste is not disagreeable. For this reason the strong mother tincture, or alcoholature of French pharmacy, has been both the most palatable and effective preparation of valerian, but it contains so much alcohol that its use is impossible in the majority of cases in which the sedative effects of valerian are required. A specially prepared juice, obtained from the roots of cultivated valerian, has been introduced under the name of

Energetene of Valerian. This, being prepared without heat and preserved without alcohol, is claimed to represent the natural fresh juice of the plant. Pouchet and Chevalier have found this preparation to be satisfactory. Pouchet has stated that any preparation of valerian which has a strong odor of valerianic acid should be regarded therapeutically inactive. This acid is in itself quite devoid of therapeutic action. Even its salts, such as ammonium valerinate, have no action, apart from the stimulant action of the ammonium. The other valerianates act solely in a propulsive and psychic manner, chiefly on account of their repulsive odor and the preconceived ideas held as to their action. Valerian juice, on the other hand, has a very powerful sedative and antispasmodic action, and, at the same time, is a cardiac tonic, so that it appears to be simultaneously a stimulant and sedative. For young children it is the safest and best hypnotic. As the juice of valerian is quite non-toxic, it may be safely prescribed as a general nervous sedative.—Nouv. Remèdes, 29 (1912), 169.

Distilled Water: Advantageous Use in Perfumery.—The "Seifenfabrikant" calls attention to the persistent use by some perfumers of ordinary tap or well water in the manufacture of perfumery, and discusses some of the advantages accruing from the use of distilled water. Thus, for example, the addition of ordinary water to alcoholic solutions of volatile oils may, and often does, produce turbidity which is difficult to remove by filtration, while the same quantity of distilled water would at once produce clear solution, or, at most, easily removable turbidity. Moreover, the impurities in ordinary water unfavorably affect the delicate odor of many perfumes, which distilled water does not. Other products, such as cosmetics, transparent soaps, etc., are similarly affected by impurities in water, and can be avoided by the use of distilled water, which is modernly so easily obtainable that there is no reason why it should not be used in the preparation of perfumery of every description in which water is required.—Pharm. Ztg. LVII (1912), No. 86, 861.

Australian Eucalypts: Yield and Character of New Oils.—R. T. Baker and H. G. Smith have described a number of new eucalyptus oils, distilled by them from the leaves of different Australian Eucalypts:

Eucalyptus acaciaeformis, Deane et Maiden, known as "red" or "narrow leaved peppermint," yielded 0.197 percent of a brown oil, having a turpentine-like odor, and consisting principally of *d*-pinene?

Eucalyptus Andrewsi, J. H. Maiden, yielded 1.27 percent of a lemon yellow oil, consisting principally of *l*-phellandrene, and containing scarcely a trace of cineol.

Eucalyptus Campanulata, Baker et Smith, yielded 0.8519 percent of a pale yellow oil, containing phellandrene as principal constitu-

ent, with some cineol, piperitone, and eudesmol.

Eucalyptus Bridgesiana, yielded 0.73 to 0.745 percent of oil, containing from 73 to 78 percent of cineol.

Eucalyptus Laevopinea, yielded an oil which did not contain above 5 percent of cineol.

Eucalyptus dextropinea, yielded 1.02 per cent of crude oil, which on rectification became nearly colorless. The crude oil contains 3.7 percent of geranyl acetate.

Eucalyptus nova-anglica, yielded an oil containing a sesquiterpene in considerable proportions, with a very small cineol content, and occasionally small quantities of phellandrene.

Parts IV and V of the second volume of the work "A Critical Revision of the Genus Ecalyptus," edited by J. H. Maiden, has also appeared, and a number of species are mentioned by title in the abstract, from which the preceding is quoted in Schimmel's Rep., October, 1912, 63-64; from Journ. and Proc. Royal Soc. of N. S. W., 45,267.

Australian Melaleuca Oils: Cajuput Oil Not a Typical Representative.—In continuation of their investigations of the Australian Melaleuca-species, R. T. Baker and H. G. Smith have discovered that cajuput oil (from *Melaleuca Leucadendron, L.*) is not a typical representation of the Melaleuca oils, as is shown in the following oils, which deviate considerably from cajuput oil in their constitution:

Oil of Melaleuca genistifolia, Sm., obtained from leaves and terminal branchlets in a yield of 0.526 percent, was pale yellow and had a well-defined odor of turpentine; sp. gr. 15°, 0.8807; opt. rot., 32° 7′; refr. index, 22°, 1.4702; sap. val., 6.8; insoluble in 10 vols. 80 percent alcohol. Contains from 80 to 90 percent of pinene, and only 2 percent of cineol.

Oil of Melaleuca gibbosa, Labill, obtained from leaves and terminal branchlets in a yield of 0.158 percent, was deep yellow and had an odor of cineol and pinene; sp. gr. 15°, 0.9138; opt. rot., 4° 5′; refr. index, 20°, 1.4703; sap. val., 9.9; insol. in 10 vol. of 70 percent alcohol, but soluble in its own vol. of 80 percent alcohol. Contains 61.5 percent of cineol, some *a-pinene,* a sesquiterpene and perhaps also terpinyl acetate.

Oil of Melaleuca pauciflora, Turez., obtained from leaves and terminal branchlets in a yield of 0.3 percent, was of a dark amber color and had a somewhat viscous consistence; sp. gr., 15°, 0.9302; opt. rot., 3° 3′; refr. index, 24°, 1.4921; sap. val., 8.25; barely soluble in 10 vols. of 80 percent alcohol. Contains only 8.7 percent of cineol, the principal constituent being a sesquiterpene, which appears to occur in the high boiling fractions of many melaleuca oils. The oil may contain limonene or dipentene, possibly also terpinyl acetate as well as about 5 percent of free terpineol.—Journ. and Proc. Royal Soc. of N. S. W. 45 (1911), 365.

Cedarwood Oil: Chemistry.—In continuation of his researches on cedarwood, F. W. Semmler, in conjunction with E. W. Mayer, has discovered a new primary sesquiterpene alcohol ($C_{15}H_{24}O$), which he has named *cedrenol.* This alcohol stands in the same relation towards cedren ($C_{15}H_{24}$) as do the two primary alcohols of the santalol series towards the santalenes ($C_{15}H_{24}$), and as myrtenol and the ginger grass alcohol stand towards pinene and limonene. When purified from primarily produced acetate, cedrenol has the following properties: Boiling point (9.5 mm.), 166° to 169°; sp. gr., 20°, 1.0083; opt. rot., 20° 0′; refr. index, 20°, 1.5212. The primary CH_2OH group in the cedrenol molecule occupies the same position which is occupied by the CH_3— group in cedrene and in solid *cedrol* ($C_{15}H_{26}O$). In addition to cedrenol, the authors have observed in cedar oil a saturated alcohol, *pseudo*-cedrol ($C_{15}H_{26}O$), which, while chemically identical with cedrol, differs from it physically. *Pseudo*-cedrol boils between 147° and 152° and constitutes a viscous oil with the following constants: Sp. gr., 20°, 0.9964; opt. rot., 20°, 21° 5′; refr. index, 20°, 1.5131.—Berl. Berichte 45 (1912), 786 and 1384.

Geraniol: Direct Estimation in Citronella Oil.—In the "Perfumery and Essential Oil Record," May, 1912, a method for the direct estimation of geraniol in citronella oil is suggested as follows: Ten gm. of hydroxylamine hydrochloride is dissolved in 25 cc. of water; 10 gm. of potassium carbonate separately dissolved in 25 cc. of water is added and the mixture filtered. With this solution 10 gm. of the oil is thoroughly shaken for two hours at 15°-18°C. The oil is then separated, dried by means of anyhdrous sodium sulphate, and acetylated with twice its volume of acetic anhydride in the usual way for one and one-half hours on a sand-bath under a

reflux condenser. The oil is washed, dried, and neutralized, and a weighed quantity (about 2 gm.) is saponified with alcoholic potash. The calculation is made by the usual formula.—Pharm. Jour. and Pharmacist, June 1, 1912, 732.

Jasmine: Cultivation and Yield of Oil.—A condensed account of the history and cultivation of jasmine is given in the "Perfumery and Essential Oil Record," May, 1912. Under the most favorable conditions 1,000 kilos of bloom yield 4 kilos of concrete essence, or 2 kilos of liquid essence. Frost is one of the great enemies of the delicate crop, and the caterpillar also requires constant attention. Artificial jasmine essence has actually improved the sale of the genuine product, partly because the synthetic article needs a certain amount of the natural oil to give it character—partly also, it is hinted, because it helps the grower to tide over a period of scarcity.—Pharm. Journ. and Pharmacist, June 1, 1912, 732.

"Lavandin": An Undesirable Lavender-Hybrid.—L. Lamothe calls attention to the increasing cultivation and utilization of a lavender-hybrid:

Lavandula fragrans latifolia, Chartenier —the result of a crossing of lavender and spike, which is known in Southern France by the name of "Lavandin," and also by several others, such as "Lavande Batarde," "Grosse Lavande," "Badasse," etc. It occurs principally in the region of the "holm-oak," even spreading over the boundaries of the latter, traversing in a broad belt the departments of Drome, Vaucluse, Basses-Alpes, etc., where it covers the southern slopes of several mountains up to the top. Like all hybrids, "lavandin" is an extraordinarily hardy plant, and in its prolific development constitutes an actual danger to the true lavender, which it robs of air and nourishment. On account of its acrid odor and bitter taste, pasturing sheep and goats shun it, while they find in the true lavender an occasionally welcome substitute for grass; but in spite of this, very considerable quantities of this hybrid are cut for distilling, and Lamothe estimates that the "Lavandin Oil" brought to market every year amounts to about 12,000 kilos, or to about 20 percent of the total output of lavender oil. It is interesting to note also that the same time and trouble that is required to collect 55 kilos of true lavender flowers, suffices to collect 400 kilos of "lavandin flowers," which, moreover, yield 1 kilo of oil from 77 to 80 kilos of flowers, whereas 145 kilos of true lavender flowers are required for 1 kilo of oil. As regards the quality, this can be judged from the fact that the average ester content of "Lavandin Oil" is 24 percent, whereas a linalyl acetate content of 30 percent is considered low for true lavender oil.—Schimmel's Rep., April, 1912, 86-88; from Perfumerie Moderne, 5 (1912), 9.

Spike Lavender Oils: Solubility in 60 per-cent. Alcohol.—According to private information to Schimmel & Co. it has been observed that the degree of solubility of spike oil varies with the origin of the material. Oils from the Alps and from Provence are said to be soluble in 60% alcohol, while the distillates from the Department of the Bouches-du-Rhone, Vaucluse, Gard, Hérault, and Aude, are said to be only rarely soluble in 60% alcohol. The differences are said to be due to variations in the conditions of the soil and the climate, and also to the method of distilling, distillation being often carried out without water and cooling. The matter is further complicated by the circumstance that, in order to increase the weight, the herb-cutters often mix other plants with the spike, such as *Saturja montana,* L., *Calamintha officinalis,* Moench, *Sideratis romana,* L., *Teucrium Polium,* L., etc., which, when the admixture is moderate, it is very difficult to pick out. With the object of checking the accuracy of these statements, Schimmel & Co. therefore secured through a business friend a collection of spike oils from various departments for examination, the results of which are shown in a table, including five distillates from different localities in the Basses-Alpes, and one each from Vaucluse, Bouches-du-Rhone, and Drôme. The results do not confirm the assertion that the degree of solubility depends upon the origin of the oil; on the contrary, generally speaking, all the oils are soluble in the same degree, and deviations occur independently of the locality of the production. Three of the oils from the Alps, dissolved in 6 vols. and more of 60% alcohol, one in 7 vols., and the fifth in 20 vols. The other oils in the order mentioned, dissolved in 7, 7.5 and 14 vols. and more of 60% alcohol. The inference is plain that any solubility differences in spike oil must be attributed to methods of distillation and greater or less care in collection of material.—Schimmel's Rep., April, 1912, 118.

Oil of Lemon: Novel Method of Valuation.—Lemon oil consists principally of terpenes and sesquiterpenes, which are of slight importance so far as the odor of the oil is concerned, and are practically insoluble in 80 percent. alcohol, whereas, the valuable odoriferous constituents are readily soluble in the same alcohol. This forms an excellent criterion for the valuation of the lemon oil, which G. Patané applies in two different manipulations. The first consists in shaking up at exactly 20° in a test tube of 10 cc. capacity, graduated to 0.1 cc., equal quantities (volumes?) of oil and of alcohol of a given strength. When the mixture has completely separated, the degree of increase of the alcohol layer is read off. The second method consists in mixing equal quantities of oil and of the alcohol in the test tube and warming them until complete solution is effected. The mixture is then allowed to cool, constantly stirring with a thermometer, graduated to 1/10th degrees, until clouding ensues, and noting the point. Differences of 1/10th degree are sufficient to cause clouding. All oils which have the same clouding-temperature show the same conditions of solubility in the first test, so that it becomes possible to draw up a comparative scale of clouding-temperature and solubility. The addition of 10 percent. of terpenes increases the clouding temperature one degree, 20 percent. two degrees, and so on. Great care must be taken with the alcohol used for the test, because so slight a difference as 1/10th of a degree suffices to alter the clouding-temperature of the alcohol.—Schimmel's Rep., October, 1912, 61.

Burmese Lemongrass Oil: Soluble and Insoluble Variety.—It has been reported that a sample of lemongrass oil distilled from cultivated grass at Moulmein, in British Burmah, although containing a very high percentage of citral (over 82 percent.), was of the insoluble variety. Further experiments have been made in connection with the cultivation of the red-stem and the white-stem grass, *Cymbopogon flexuosus* and *C. citrus*, respectively, the latter yielding the oil referred to. A sample of oil distilled from this variety occurred in lower percentage, but was readily soluble in three volumes of 70 percent alcohol. The difference is not easily accounted for, but it seems that it is not possible to differentiate between the two varieties of *Cymbopogon*, and to lay down on hard-and-fast lines that the one yields a soluble and the other an insoluble oil.—Pharm. Jour. and Pharmacist, June 1, 1912, 732; from Perf. and Ess. Oil Rec., May, 1912.

Linaloe Oil: Linalool Monoxide a Constituent from Mexican and Cayenne Linaloe Distillates.—In the course of examination of the oils distilled from Mexican and also from Cayenne linaloe wood, in 1908, Schimmel & Co. isolated a body having the formula $C_{10}H_{18}O_2$, which they set down as an oxide of linalool. In 1810, N. Prileshaeff, engaged in the investigation of the oxidation products of unsaturated compounds, mentioned among others a linalool monoxide, which Schimmel & Co. were able to show was identical with the oxide $C_{10}H_{18}O_2$ previously isolated by them. To confirm their previously expressed opinion, they have now prepared the monoxide by Prileshaeff's method, and find the two bodies to be identical. The body is somewhat viscous and is clearly differentiated from linalool by its mouldy odor, which they account for as the result of a gentle oxidation possibly favored by the moist climate of the tropics in its effect upon the wood.—Schimmel's Rep., October, 1912, 78-80.

Nigella Oil: Synthesis of its Alkaloidal Constituents—Damascenine.—The beautiful blue florescence of the oil of *Nigella damascene*, L., is due to the presence of an alkaloid, damascenine, which A. J. Ewins has recently shown can be prepared synthetically (see damascenine under "Organic Bases"). Since then the author has described the results of his investigation in greater detail, the synthetic process consisting in the conversion of *m*-hydroxybenzoic acid, into methoxybenzoic acid, this into a nitro-derivative, reducing this to aminomethoxybenzoic acid, and converting this into the hydriodide and finally into the hydrochloride of methylamino methoxybenzoic acid, which is identical with the hydrochloride of damasceninic acid. From this the conversion into damascenine results by treatment in a well-known manner. The further result of the investigation has shown that the formula $C_9H_{11}NO_3$, assigned to damascenine by Pommerehne (1900) is incorrect, while the formula $C_{10}H_{13}NO_3$, assumed by Schneider (1890), almost corresponds with the actuality. Furthermore, that the so-called "methyldamascenine" which has been isolated from the seed of *Nigella aristata* by Pommerehne and Keller (1908) is

identical with damascenine.—Journ. Chem. Soc., 101 (1912), 544.

Bulgarian Rose Oil: Present-day Primitive Method of Production.—Dr. P. Siedler, in an address delivered at the October session (1912) of the German Pharmaceutical Society, after giving an interesting account of his journey through the Bulgarian "roseland" and description of the cultivation and gardening of the red and white roses used exclusively for the production of the Bulgarian Oil of Rose, describes the method of distillation which, with a few more modern exceptions, is mostly carried out in the old, somewhat primitive manner. According to this method, 60 kgm. of hot water and 12 kgm. of rose petals are introduced into the still, and 12 liters of distillate are collected, and from this 2 liters are then distilled and set aside, when upon standing the rose oil separates and is removed from the surface. The yield is very variable and depends on a variety of conditions; in general about 1 kgm. of rose oil is obtained from 1000 kgm. of rose petals—the best oil and most abundant yield being obtained from the red roses; but the white roses will flourish in localities that are unsuitable for red roses, and the rose oil produced in Bulgaria is therefore mostly a mixture of the two varieties of oils. As has been noted by others, the author mentions that the adulteration of the oil during its production is frequently practiced, the principal adulteration being palmarosa oil, geranium oil, spermaceti, paraffin, alcohol, etc.—Pharm. Ztg., LVII (1912), No. 81, 818.

Chinese Wood Oil: Standardization by Means of the Heat Test.—The Berlin Produce Exchange Committee on Fats and Oils proposes the following temporary standards for Chinese wood oil:

Wood Oil from Hankow and Shanghai shall be regarded as of good merchantable quality if, after being heated to from 282° to 293° C., it sets hard in six to six and a half minutes, can be cut dry, and is firm in consistence without being sticky or altered in color.

Wood Oil from Canton or Hong Kong should become hard in four and a half to five and a half minutes. The question of purity is left out of consideration; but if so-called pure oil takes longer than the periods mentioned to become hard, the purity must be ascertained by other tests.—Oil and Col. Trades Journ., July, 1912, 136.

Chinese Wood Oil: Value and Method of Carrying Out the Heat Test.—Frank Browne, Government Analyst, Hong Kong, observes that the quality of Chinese Wood Oil is determined to a large extent by its well-known characteristic property of forming a jelly when heated to and maintained at a temperature of 250° C. for a few minutes, but that different observers usually employ different temperatures, so that results are not easily comparable. In view of the large and increasing export of this oil, it seems very desirable to arrange a heat test which can be repeated by both buyer and seller in any part of the world, and with this object he has devised a method which insures that the heating is carried out in an identical manner, describing the aparatus necessary as well as the process itself in detail. Employing a temperature which is maintained as close as possible at 282° C. (540° F.) he obtained concordant results when operating on seven samples of pure oils in conformity with the details described by him, these showing that the times of setting varied from eleven to thirteen minutes. For a wood oil containing 10% of adulterant, the time varied from thirteen to fifteen minutes, and with 20% of adulterant from sixteen and a half to nineteen minutes. The results, which are given in detail in several tables, show that a heat test carefully applied is of considerable help in ascertaining quality. If the time required does not exceed twelve and a half minutes the oil is in all probability genuine; if more time is required further examination is desirable.—Chem. News, July 12, '12, 14-15.

"Hardened" Oils: Production and Characters.—Dr. Aufrecht gives some interesting information concerning the physical and chemical properties of "hardened" oils, about which little has appeared in the literature. These products, which promise to become of importance in the soap and food industry, and have also attracted some attention in the manufacture of pharmaceuticals and cosmetics, are obtained under patented processes, depending on the action of hydrogen upon different oils, such as rape, sesame, arachis, cotton, ricinus, and train oils, in the presence of a catlyzer, such as nickel, colloidal palladium, or palladium chloride, or in the absence of catalyzers, by passing a continuous current of hydrogen and oil through a perforated centrifuging drum. Under these treatments, aided in some cases by heat (150°-

180°), in others conducted at the ordinary temperature, the unsaturated acids of the oils (animal or vegetable), are converted into saturated fatty acids, in accordance with the equation $C_{18}H_{34}O_2+2H=C_{18}H_{36}O_2$, and present in general the following characters:

They possess great hardness, have a granular structure, and, according to the particular method, are either yellowish or pure white. They have no marked odor, but when heated to melting manifest a peculiar pyrogenous odor. The taste is unpleasant, reminding of rancid tallow. They are readily soluble at the ordinary temperature in ether, chloroform, carbon tetrachloride, benzin, petroleum, and carbon disulphide, but only sparingly soluble in alcohol and methylalcohol. The specific gravity ranges from 0.9252-0.9268 at 15° C., and the melting point from 44.5° to 46.5° C.; in fact there is a close agreement in the constants of the "hardened' 'oils (also known as "Duotol") obtained from different sources as shown in a table giving the results obtained by the author with yellow and white "duotol" and with "hardened train oil."—Pharm. Ztg., LVII (1912), No. 87, 876-877.

Emulsin: Synthetizing and Hydrolyzing Action.—Continuing their investigation of the synthetizing action of emulsin, E. Bourquelot and M. Bridel find that the ferment is capable of bringing about the direct combination of ethyl alcohol and glucose. When emulsin was constantly agitated in alcohol (85 percent) in presence of glucose for twenty days in a mechanical agitator so that fresh particles of the ferment were constantly brought into contact with the solution, as much as 77.8 percent of the glucose was converted into *B-ethyl-glucoside*. Further experiments show that this can be converted into the stereoisomer *A-ethyl-glucoside*, by action of hydrochloric acid. A similar combination takes place with other alcohols and glucosides in presence of emulsin. Glucosides of methyl, propyl, isopropylbutyl, and insobutyl alcohols, have been obtained, and these compounds are again hydrolized by emulsin in aqueous solution.—Journ. de Pharm. et Chem., 1912, 6, 13.

Rennet: Action on Milk.—In the manufacture of Cheddar cheese, retardation of the time of coagulation has often been remarked, notwithstanding the activity had been of the required degree before the addition of the rennet to the milk. The investigations of M. Nierenstein and J. Stubbs show that the activity of the milk is not due entirely to lactic acid, but partly to some product originating from caseinogen, and that though this is stimulated by the addition of lactic acid, pure lactic acid is of no use as a starter. Furthermore, the authors find the retardation of the time of coagulation with rennet is not entirely dependent on the calcium salts.—Journ. Soc. Chem. Ind., July 15, 1912, 657.

Thyroid Glands: Iodine Content.—N. H. Martin reports the results of a long series of determinations of the iodine content of thyroid gland which has been carried out during the past year by his principal chemist, Mr. Binks. These results are exhibited in a table giving the dates, numbers, weight of fresh lobes (average and total), weight of dried thyroid, average yield, iodine in the dry and the fresh thyroid and the average iodine per lobe—over 6500 lobes having been used in the course of these determinations, and the figures in each estimation being based on the bulked product of some hundreds. This is regarded a very important point, as the iodine content of thyroidum siccum from single glands varies more than the milk obtained from individual cows, and it is obviously as inadvisable to talk of fixing a standard from assays of a few glands as to fix a milk standard from analysis of milk obtained from a few animals instead of from herds. The B. P. does not include limitation figures for size of glands, but "hypertrophied or otherwise abnormal" glands are directed to be rejected. It is difficult to see how the average pharmacist can be expected to discriminate. Sheep's thyroids vary in size, but anything between 1 in. and 2 in. in length may be said to be usual. Frequently glands are met with which greatly exceed these proportions, though apparently of healthy enough tissue. Such lobes were always discarded, but the following figures are of interest:

Wt. of Lobe Grams	Wt. of Dry Thyroid Obtained Grams	Iodine in Dry Thyroid %	Iodine per Lobe Gram
12.0	2.8	0.22	0.00616
14.0	3.3	0.20	0.00660
32.5	7.5	0.08	0.00600

It is noteworthy that while large lobes contain much more iodine than usual, it is not proportionate to their increased weight, and the percentage of iodine in the dried substance is reduced. The author states that the iodine in

Liquor Thyroides, B. P., varies from 0.01 to 0.03 gm. per 100 cc., but that apparently only half the iodine in the glands is extracted.—Trans. Brit. Pharm. Conf., 1912, through Chem. and Drug., August 3, 1912, 200.

"Rice-Polishings": A Remedy for Beri-Beri.—In a paper on the prevention and cure of beri-beri, reference is made to the fact that rice is rendered harmful by the milling and polishing process to which it is subjected, resulting in the removal from the grain of some substance of high physiological importance, the absence of which results in the production of polyneuritis in fowls and of beri-beri in man when a dish is consumed of which polished rice is the staple. Drs. H. Frazer and A. T. Stanton observe that an attempt has been made to prepare a remedial agent from these polishings, since good results have been seen in cases treated by extracts prepared from the polishings. It has been found that the active substance is soluble in water and in 91 percent. alcohol, the latter solution retaining its activity for months. Accordingly an

Extract of "Rice Polishings" (more properly designated a fluid or liquid extract! Rep.), was prepared as follows: Sifted polishings were freed from fat by percolation with petroleum ether, and dried in the air; then 1 part of the fat-free material was macerated for a week in 4 parts of 94 percent alcohol acidulated with 0.3 percent of hydrochloric acid, filtered, the filtrate nearly neutralized with sodium carbonate, again filtered, and the filtrate concentrated to a small volume under reduced pressure, at 60° C. A little water was added, and residual fat removed with petroleum ether; whereupon the new fat-free product was concentrated to near dryness (below 60° C.), and the residue dissolved in water and alcohol in such proportion that the final product contained 50 percent of alcohol and 1 cc. represented 10 grammes of the fat-free polishings. With this extract the curative and prophylactic properties of the "rice-polishings" was proved.—Pharm. Journ. and Pharmacist, October 26, 1912, 519; from Lancet, October 12, 1912, 1005.

Yeast: Presence of an Alkaline Curative Substance which Prevents Polyneuritis.—It has previously been shown by C. Funk that "rice-polishings" contain a substance which prevents polyneuritis, and this substance has been isolated in a more or less pure crystalline state, the provisional formula $C_{17}H_{20}N_2O_7$ being attributed to it. The author has since examined yeast, which is known to possess similar curative action, and has isolated from it the same substance, to which he has given the name

Vitamine.—It is, however, accompanied by pyrimidine bases and other substances, to eliminate which hydrolysis and fractional precipitation are necessary; consequently the yield of pure vitamine is very minute. Nevertheless, vitamine is undoubtedly the sole curative agent in yeast, and in "rice-polishings," and a large number of cures of pigeons affected with polyneuritis have followed the administration of 2 to 4 centigrammes. Vitamine probably belongs to the pyrimitine group; the aqueous solution of the base is neutral and does not react with acids. When recrystallized from diluted alcohol it melts at 233° C.—Brit. Med. Journ., 1912, 2, 787.

Alcoholic Extract of Yeast: Curative Effect in the Treatment of Beri-Beri and Polyneuritis.—It is stated by E. S. Edie, W. H. Evans, and others, discussing the curative treatment of beri-beri and polyneuritis, that an alcoholic extract of ordinary yeast, after the removal of the alcohol at a low temperature, is extremely active in curing the convulsions and lameness of birds suffering from polyneuritis. An organic base, to which the name

Toruline has been given, has been isolated from this extract. Its nitrate, which apparently has the composition $C_7H_{16}O_2N$, occurs in feathery crystals, and is not precipitated by basic lead acetate, although thrown down by phosphotungstic acid. The extract loses its activity on warming, and the active substance is apparently easily decomposed by heat.—Biochem. Journ., VI, part 3, through Nature, October, 1912, 140.

Yoghurt-Glycobacterium: A New Milk Ferment from the Intestines of the Dog.—Dr. Piorkowski describes under the name of yoghurt-glycobacterium, a new milk ferment, discovered by Metschnikoff in the intestinal flora of the dog, which he believes to be destined to find favor for the preparation of a new sour milk possessing certain advantages over ordinary yoghurt-sour milk. The new bacterium possesses saccharifying properties and is therefore, according to Metschnikoff calculated to prevent or retard the formation of indol and scatol, the two powerfully poisonous bodies which are found in small

amounts in the large intestine and are held responsible for the senile degeneration of man. In ordinary yoghurt there are three kinds of bacteria, namely, *Bacillus bulgaricus*, which is the most important, since it has the function of destroying the putrefaction bacteria existing in the intestines, replacing them and forming lactic acid, and two others, consisting of *B-diplo-coccus* and *B-strepto-coccus*, which exercise the subordinate function of decomposing the sugar in the intestines. These several bacteria exert a more intense activity if in the presence of an abundance of sugar, and it is therefore recommended (and the practice) to administer the yoghurt in connection with saccharine food, such as dates or bananas. The sugar so provided is, however, almost entirely consumed before it can pass from the small into the large intestine and there exerts its saccharifying action producing the sugar necessary for the *Bacillus bulgaricus* to exert its function to retard or prevent the formation of indol and scatol in it. Dr. Piorkowski's investigations demonstrate that this new "Microbion" consists of immobile, ovid, gram-negative bacilli, developing at as low a temperature as 22°-35° C. a rose-red to pale red metabolic product, which imparts a fine color to wafers, bread, rice, potatoes and flour, but is destroyed at higher temperatures. Milk is coagulated by it at 37° C., and at lower temperatures acquires a light rose-yellow color. The taste of the milk so produced is sweetish. In combination with yoghurt an agreeably-tasteing sour milk is produced which symbiotically combines the glycobacterium with the bacteria ordinarily present in the yoghurt.—Pharm. Ztg., LVII (1912), No. 87, 876.

The Pharmacist and the Law

ABSTRACT OF LEGAL DECISIONS.

MALT LIQUORS—SALES—STATE REGULATIONS.—Action was brought in the Mississippi State courts by a corporation engaged in the manufacture of a beverage called "Poinsetta" for a sum claimed under an agreement with the defendant for the purchase by him of the article on stated terms for five years for sale in exclusive territory in Mississippi. For this exclusive right he was to pay $500 within five days after making the contract, and it was to recover this sum that the action was brought, the defendant having repudiated the agreement at the outset, upon the ground that, on coming to Mississippi, he found it to be illegal to sell "Poinsetta" in that state. The trial court sustained the defense, and its judgment was affirmed by the Mississippi Supreme Court. The plaintiff took the case to the United States Supreme Court for review. The parties made an agreed statement of facts in which it was agreed that "Poinsetta" was not an intoxicant, and that "the United States government does not treat 'Poinsetta' as within the class of intoxicating liquors, and does not require anything to be done with reference to its sale." The state court construed the state statute as prohibiting the sale of all malt liquors, whether in fact intoxicating or not, and the United States Supreme Court held that this construction of the state statute was binding upon it. As the parties' contract contained no suggestion that the contemplated resales were to be made in the original imported packages, but was broad enough to include other sales, and hence encountered the local statute as applied to transactions outside the protection accorded by the Federal Constitution to interstate commerce, it was held that the state court's decision did not involve the denial of any right incident to interstate commerce.

By the terms of the contract the agreed prices were per cask containing 10 dozen bottles and per case containing 6 dozen bottles. It was held that each separate bottle shipped into the state under this contract could not be considered an original package, so as to save the local sales from the interdiction of the Mississippi statute prohibiting the sale of malt liquors.

Local sales of malt liquors, whether intoxicants or not, might, it was held, be forbidden by the state in the exercise of its police power, as is done by the Mississippi statute, without infringing the Federal Constitution, 14th Amendment, against taking liberty or property without due process of law.

Purity Extract & Tonic Co. v. Lynch, 33 *Sup. Ct. Rep.* 44.

DAMAGE TO FOUNTAIN IN TRANSIT.—Action was brought by the consignee of a soda fountain against the final carrier for damages

to a part of the fountain. The fountain was shipped in 15 or 16 separate boxes. When these were opened by the consignee the contents of one of them were discovered to be broken. There was no evidence introduced showing that the fountain was in good condition when delivered to the initial carrier. It was held that the plaintiff was not relieved from showing this by a provision in the bill of lading describing the property as being "in apparent good order, except as noted, (contents and condition of contents of package unknown)." This excluded any inference that the carrier admitted anything as to the condition of the contents of the boxes.

Alabama & V. R. Co. v. Cassell Drug Co., Mississippi Supreme Court, 59 *So.* 932.

DISTRIBUTING MEDICINE — REGULATION.—The Indiana statute (Burns' Ann. St. 1908, section 2446), prohibits the distribution from house to house of medicinal preparations, or the giving or causing to be given to any child under the age of 16 years any such sample of medicine. Section 2447 prohibits the distribution of "any deleterious substance." In proceedings under the statute it was held that it prohibits the distribution, from house to house, of samples of medicine, though the samples are handed to adults, even though by implication the distribution of samples to adults on the street is not forbidden, as the Legislature has a wide discretion in determining methods and expedients for the protection of the public health.

The statutes were held not to be in violation of the state constitutional provision prohibiting the granting of privileges and immunities which upon the same terms shall not equally belong to all citizens, as that section cannot be invoked as against the exercise of a purely police power, when it is applied alike to all who may be affected by its exercise.

Ayers v. State, Indiana Supreme Court, 99 *N. E.* 730.

RIGHT TO INTEREST.—In an action for claim and delivery of a soda fountain, to which the plaintiff claimed title by reason of the possession of notes reserving title to the seller, on which it was alleged there was a balance due of $871.50, with interest from April, 1909, the jury returned a verdict that the amount due on the notes was $840. It was held that this presumptively included interest, and the trial court could only render judgment bearing interest from its date.

American Soda Fountain Co. v. Shell, North Carolina Supreme Court, 76 *S. E.* 631.

TAXATION OF SODA FOUNTAINS.—A controversy without action was submitted to the supreme court of North Carolina to determine the legality of a license tax imposed by a municipal corporation upon soda fountains. The charter of the town provided that in addition to the powers therein specially enumerated, the town should have all the powers incident to corporations of like character under the general laws of the state. The state laws, Revisal 1906, section 2924, confers on cities and towns the power of annually levying a tax on all trades, professions and franchises carried on therein. It was held that the town was empowered to impose a license tax of $5 on every soda fountain maintained in the town; the business of keeping soda fountains being a "trade" within the meaning of revenue acts, in regard to which the word is defined as "any employment or business embarked in for gain or profit."

Lenoir Drug Co. v. Town of Lenoir, 76 *S. E.* 480.

NEGLIGENCE IN FILLING PRESCRIPTION.—Action was brought for alleged negligence in compounding a physician's prescription calling for five grains of phenacetin and five grains of sugar of milk, to be put up in five powders, containing one grain each of the phenacetin and sugar of milk. One of the powders, given to a child of four years old, made her ill. It was held that the analysis of one of the powders which was found to contain but six-tenths of a grain of phenacetin was against the supposition of due care, the inference being that the surplus had got into one or more of the other powders. The medicine called for by the prescription had been successfully administered to the child for a year, so that the mother was not chargeable with contributory negligence in administering the powder without first consulting a physician.

Coughlin v. Bradbury, Maine Supreme Court, 85 *Atl.* 294.

UNLAWFUL SELLING OF COCAINE—QUANTITY NOT A TEST.—In sustaining an indictment under the New York Penal Law, Section 1746, charging the defendant with selling an "unknown quantity" of cocaine at re-

tail, not on the prescription of a physician, the New York Court of General Sessions held that it was sufficiently alleged that the sale was not at wholesale, the quantity sold not being made, by the statute, a test of a sale at wholesale.

People v. Levy, 138 *N. Y. Supp.*, 163.

SEIZURES UNDER PURE FOOD ACT—REVIEW.—A decree of a Federal district court dismissed, after a trial without a jury, a libel having for its object the condemnation of food products seized upon land under the Pure Food Act of June 30, 1906. The United States Supreme Court holds that such a decree is reviewable in the circuit court of appeals by writ of error, and not by appeal, notwithstanding the provisions of section 10 of the act that the "proceedings of such libel cases shall conform as near as may be to the proceedings in admiralty, except that each party may demand trial by jury of any issue of fact joined." The reason is that such provision cannot be deemed to intend to liken such proceedings to those in admiralty beyond the seizure of the property by process *in rem*. After that the case assumes the character of an action at law with trial by jury if demanded, and with the review already obtaining in actions at law. The proper mode of reviewing being by writ of error, neither the action of the court nor the consent of the parties could confer jurisdiction of an appeal.

443 *Cans of Frozen Egg Produce v. United States*, 33 *Sup. Ct. Rep.*, 50.

DUTY TO INSPECT FOOD.—The New York district court, S. D., holds that a packer, billing and selling pork to a retailer for sale to a consumer, owes a direct duty to the consumer to inspect the pork, to ascertain whether it is infected with trichinæ, or is otherwise unfit for food, and he is liable to the consumer for injuries sustained by failure to perform this duty.

Ketterer v. Armour & Co., 200 *Fed.* 322.

FOOD SOLD ON DINING CARS—NON-LIABILITY FOR INJURIES FROM.—In an action by a passenger against a railroad company for damages for injury to the plaintiff's health alleged to be caused by eating poisonous canned asparagus served to her on one of the defendant's dining cars, it was held by the Maine Supreme Court that a carrier of passengers is not an insurer of the quality of canned goods furnished on its dining cars. Where it serves such goods of a high brand, sold by a reliable dealer, guaranteed under the Pure Food Law, and without defect discoverable to eye, smell or taste, it is not liable for injuries caused by eating poisonous goods. All the facts ascertainable regarding the goods were as apparent to the passengers as to the railroad company; and it was impossible for the latter to know anything more about the contents of the can than did the passenger.

Bigelow v. Maine Cent. R. Co., 85 *Atl.* 396.

VIOLATION OF PURE FOOD LAWS—INTENT—ANALYSIS.—The Supreme Court of Washington holds that the statute (Rem. & Bal. Code, section 2513), providing that any person selling, delivering, offering for sale, or having in his possession with intent to sell or deliver, any milk of a grade below the standard therein fixed, is guilty of a misdemeanor, imposes the penalty for a violation thereof without regard to wrongful intention. The managing agent having control of the business of a corporation having in its possession such milk with intent to sell and deliver is criminally liable.

Section 5478 requires the person collecting samples of milk for analysis to send the result thereof to the person from whom the sample was taken, or the person responsible for the condition of the milk, within 10 days after obtaining such result. It does not provide that this is a prerequisite to a conviction for having possession of milk of a grade below the statutory standard. Section 5468 provides that the party collecting samples shall upon request seal and deliver to the owner or person from whose possession the milk is taken a portion of such sample, and that no evidence of the result of the analysis of such sample shall be received, if the collector refuses or neglects to seal and deliver a portion of such sample. Section 5477 provides that a producer of milk shall not be liable to prosecution unless a sealed sample thereof be given to him.

The conviction in the case at bar was reversed and a new trial ordered for error in giving oral instructions in a criminal case over the accused's objection, Laws 1909 c. 86, providing that the court must reduce its charge to writing.

State v. Burnam, 128 *Pac.*, 218.

SALE OF MILK CONTAINING VISIBLE DIRT.—The Indiana Pure Food Law of 1907 was entitled "An act forbidding the manufacture, sale or offering for sale of any adulterated or misbranded foods or drugs, defining foods and drugs, stating wherein adulteration and misbranding of foods and drugs consist," etc. The Act of 1911 purported to amend section 3 of the prior act by adding as one of several things prohibited and made unlawful the sale of "milk which contains visible dirt." In proceedings for selling milk containing visible dirt the Indiana Supreme Court holds that the title shows that it embraces the general subject of the sale of food, and the object of securing to consumers pure and wholesome food. It is sufficiently broad to cover the prohibition of the sale of milk containing dirt; and the act is not in violation of the section of the Constitution providing that an act shall embrace but one subject and the matters properly connected therewith, which subject shall be expressed in the title.

The statute does not require that the keeping or selling shall be for food purposes. The affidavit seeking to charge the violation charged that the accused did "unlawfully sell" milk containing visible dirt. It was held that the use of the word "unlawfully" precluded all legal excuses for the offense, and even if the provision of the statute must be construed to prohibit only sales for food, the use of the word negatived a sale for any other purpose.

In any event such laws are police regulations for the food supply of the people, and the law-making power is vested with a broad discretion to determine what is necessary to secure to the consumers cleanliness, wholesomeness and purity in so important and easily adulterated or tainted a food as milk. The courts will sustain such regulations without any attempt to limit them by construction.

Moreover, as the sale of the milk under any other circumstances or for any other purpose, which might make the sale lawful, would be a matter of defense, which could be shown under a plea of not guilty, the affidavit was not insufficient for failing to anticipate and negative such a sale.

Although the act fixes no standard by which visible dirt can be determined, it is not thereby rendered indefinite and incapable of enforcement. The term "visible dirt" has a common and specific meaning. "Visible" means perceivable by the eye; capable of being seen. "Dirt" is defined as any foul or filthy substance; whatever, adhering to anything, renders it foul, unclean or offensive.

State v. Closser, 99 *N. E.*, 1057.

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ABSTRACT OF U. S. TREASURY DECISION.

(T. D. 1820.) ALCOHOLIC MEDICINAL PREPARATIONS.—The classification of "Glycerine Tonic," manufactured by G. E. Kimmerer, of Canajoharie, N. Y., has been reconsidered, and the compound has been classed as an alcoholic medicinal preparation for manufacture and sale solely in good faith for medicinal use only, and special tax is not required.

(T. D. 33025.) DRAWBACK ON LEONARDI'S BLOOD ELIXIR AND RENO'S NEW HEALTH.—Drawback on domestic tax-paid alcohol used by S. B. Leonardi in Reno's New Health and Leonardi's Blood Elixir amended. Allowance for the blood elixir not to exceed 19.5 percent of the exported quantity; and for Reno's New Health 18 percent thereof. Allowance for worthless waste not to exceed 25.50 percent of the alcoholic content of the blood elixir exported, and 28.50 percent in the case of the New Health, computations to be made on a basis of 188° proof alcohol.

(T. D. 33020.) WHITE SULPHUR MATCHES.—The furnishing of official certificates of inspection, or bonds, for the production thereof, will not be required under T. D. 32975 until April 1, 1913, in the case of matches manufactured in Sweden and Norway, the governments of these countries not having had sufficient opportunity to make arrangements for the issuance of certificates.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

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Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co. Columbus, Ohio.

A MISADVENTURE.

Through a mistake in the mailing department of the JOURNAL, too many copies of the March, 1912, issue were sent out, and as a consequence the number of copies of that month in stock is extremely small.

The general secretary will remit 35 cents for each copy of that issue which is sent to his office at Scio, Ohio, or will send in exchange any other number of the JOURNAL that may be desired.

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A NEW DRUG JOURNAL.

The National Drug Clerk is the title of the new official organ of the National Association of Drug Clerks, and is issued from the national headquarters in Chicago. The editor and director of publicity is E. George Hopkins; the assistant editor is P. A. Mandabach, formerly of Columbus, Ohio.

The new publication is filled with matter interesting to drug clerks, has a good list of advertisements, and presents a good appearance, inside and outside.

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THE WOMENS' SECTION.

At the Denver convention the Council provided for the creation of a Women's Section of the A. Ph. A., and this Section will hold its initial meeting at Nashville in August next.

In creating this new Section the Council did not adopt any rules or regulations defining or limiting its functions, but left these entirely to the discretion of the ladies themselves. This was done, not as suggested by a spiteful old bachelor, "because the married men on the Council knew better than to try any such thing," but because they knew that the ladies of the new section were quite competent to arrange their own constitution and by-laws and to plan their own activities, and in fact that they would do these things better if not interfered with.

The American Pharmaceutical Association was among the first, and possibly the very first of pharmaceutical associations to champion the cause of the woman pharmacist, and on numerous occasions by resolution and otherwise it has asserted her right to full recognition in pharmaceutical fields. On at least one occasion a special session of the Section on Education and Legislation was de-

voted to a symposium on Women in Pharmacy.

So also, women have frequently been elected to office in the Association, have been encouraged to read papers before its sections, and have served on its committees, proving that the Association has more than a mere academic interest in the subject.

That such a section was not created earlier has not been due to any lack of gallantry on the part of the men, but rather to the fact that they did not think of it, and the ladies were too modest to remind them of the omission.

The principal thought in the minds of the Council members in providing for this new section, was that it would emphasize the fact that the Association recognizes the place of women in pharmacy, and as evidence of its faith, voluntarily assigns to them a specific part in the activities of the organization.

Presumably, if the members of the Women's Section have any papers bearing upon the work of any of the other sections, they will read them before such sections, and will reserve the reading and discussion of papers that relate to women in pharmacy for their own section. Presumably, also, the Women's Section will have an important influence in directing the social functions of the annual meetings. These and other questions, however, can be safely left to experience and to the inclinations of the members of the new section.

The officers of the new section are already at work, and the chances are that a surprisingly good program will be presented at the first meeting.

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THE NATIONAL DRUG TRADE CONFERENCE.

The Legislative Conference of National Pharmaceutical Organizations, called in consequence of certain resolutions adopted at the Denver convention of the American Pharmaceutical Association, met at the New Willard Hotel, Washington, D. C., January 15, and resulted in the formation of a permanent organization known as the National Drug Trade Conference.

As the Conference is to consist of delegates appointed annually by the constituent associations, it was thought advisable to provide only a skeleton form of organization governed by a code of rules and regulations, rather than to create a body having a formal constitution and by-laws.

This code of regulations is published elsewhere in connection with the minutes of the proceedings of the conference.

Five national bodies were represented by three delegates each, though the code of regulations provides for the admission of other medical and pharmaceutical bodies by majority vote.

The proceedings of the Conference were highly satisfactory to all concerned. Anticipated difficulties due to supposedly conflicting interests did not appear, while the delegates of the several branches found, somewhat to their surprise, perhaps, that the representatives of the other branches were quite ready to meet them half way and to agree upon a basis of settlement fair to all.

It was the first time in history, as one of the delegates said, that all branches of the trade have been able to meet on common ground and present a united front. Another delegate said, "Why was such a conference not formed years ago?" Another declared, "This is the greatest thing that has ever been done for American pharmacy."

Even if the Conference should not possibly result in as much good as some of the more enthusiastic delegates thought it would, the good it has already accomplished amply justifies the action of the American Pharmaceutical Association in calling it together, and it was gratifying to note that among the most enthusiastic delegates present were some of those who both at Boston and at Denver opposed the Association's action.

In addition to providing a permanent form of organization, the Conference devoted nearly two days to the discussion of the Harrison bill, and to conferences with its distinguished author, Congressman Burton Harrison, of New York, and with the U. S. Opium Commissioner, Dr. Hamilton Wright. Numerous amendments important both to medicine and pharmacy were secured, and the Conference adjourned with the feeling that while the existing measure is still far from satisfactory, it will be considerably more efficient in controlling the traffic in habit-forming drugs, and will be far less burdensome to the legitimate druggist and conscientious physician than it would have been if enacted in the earlier form.

The Bulletin Board

REVISION OF PUBLIC HEALTH SERVICE REGULATIONS.

"A board of commissioned medical officers has been convened to meet at the bureau at the call of the chairman for the purpose of preparing a revision of the regulations for the government of the Public Health Service. The detail for the board is as follows: Assistant Surgeon General A. H. Glennan, Chairman; Assistant Surgeon General W. C. Rucker, Assistant Surgeon General John W. Trask, Surgeon John F. Anderson, and Passed Assistant Surgeon B. S. Warren, Recorder."—*Army and Navy Register.*

The convening of the above board is of vital interest to the pharmacists of the U. S. Public Health Service, as their pay is governed entirely by regulation.

Now is the time for every pharmacist of the country who has the status of his profession at heart to write to the Surgeon-General, Public Health Service, Washington, D. C., and urge him to do all in his power to correct in the forthcoming regulations the deficiency in the pay of the pharmacists of his Service, by giving them at least what the pharmacists of the Navy are getting.

The following pay table speaks for itself:

Table showing comparative rates of pay of the pharmacists of the Navy and the pharmacists of the Public Health Service of the United States:

Length of Service	Annual Compensation Navy[1]	P. H. S.
First 3 years.....	$1,125.00	$ 700.00
At end of 5 years....	1,375.00	880.00
At end of 6 years....	1,785.50	880.00
At end of 10 years....	1,840.00	960.00
At end of 12 years....	2,400.00	960.00
At end of 15 years....	2,600.00	1,300.00[2]
At end of 20 years....	2,800.00	1,400.00

[1]The compensation of the Naval pharmacist as given in the above table is for shore duty; the scale of pay for sea duty is greater, the maximum reaching $3,150 per annum.

[2]Provided promotion to the first grade has been reached.

The additional allowances for quarters, etc., for pharmacists of both services are practically the same.

The above rates of pay include 10% increase on the annual salary for each five years' service; this applies to the pharmacists of both services.

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RESOLUTIONS ADOPTED BY THE DENVER BRANCH OF THE A. PH. A. AT ITS DECEMBER MEETING.

"WHEREAS, The Council of the A. Ph. A. is considering the discontinuance of the annual publication of the Association, and

"WHEREAS, The publication of this volume is a time-honored habit dear to every member, and

"WHEREAS, This volume is of great value and highly prized by each member as a book of reference and record of the Association's work, growing sets of which form a most valuable library of the pharmacist, and which would be lost to him in the future by its discontinuance for the reason that the careful filing and preserving of the monthly journal is a difficult and uncertain task under the conditions existing in the average retail drug store, and

"WHEREAS, Hundreds of pharmacists who have been asked and have joined the A. Ph. A. in the last year, who were told of this valuable volume, the receipt of which was one of the strong inducements that caused them to join, will be disappointed and will have been misled against the will of those who caused them to join; therefore

"Be it resolved by the Denver Branch of the A. Ph. A. in regular session assembled, that we most emphatically demand the publication and distribution of the "Proceedings" for 1911 and 1912 in accordance with the established custom of the Association, and that in case it be decided by the Council that it is for the best interest of the Association not to publish the annual 'Report on the Progress of Pharmacy' in the future as had been planned, that before such action takes effect this most vital step be submitted to a vote of the entire membership of the Association."

Signed: JOHN BEST, President.
F. W. NITARDY, Secretary.

(The 59th volume is now in press and will be distributed shortly to all members whose dues are paid.—J. H. Beal, General Secretary.)

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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NEW ENGLAND BRANCH.

The annual meeting of the New England Branch, A. Ph. A., was held on Wednesday evening, January 8, at Hotel Plaza, Boston.

The business meeting lasted less than half an hour, the treasurer's report being read and accepted and the following officers elected for the year:

President—Henry A. Estabrook, Fitchburg, Mass.

Vice-President—Carlton B. Wheeler, Hudson, Mass.

Secretary-Treasurer—R. Albro Newton, Southborough, Mass.

Chairman, Prof. Relations Com.—Frank F. Ernst, Jamaica Plain, Mass.

Chairman, Membership Com.—William H. Glover, Lawrence, Mass.

Elie H. LaPierre, Cambridge, Mass., was elected to the Council for three years.

After the short meeting an excellent dinner was served to our members and to the members of the Boston Association of Retail Druggists. Pres. Charles F. Nixon was master of ceremonies and had induced four very successful pharmacists to address the gathering on methods by which they had developed special profits.

The first speaker was Frank F. Ernst who had samples of a number of his specialties of the family remedy type, the gist of his remarks being that he made his own products, made them well, labelled them distinctively and sold them at a price higher than the average so-called non-secrets. As he has stated many times before, he keeps exact record of the cost of materials used and also puts in small bottles such articles as Camphorated Oil immediately after making, doing away with the gummy shelf bottle and the five-cent sales.

S. V. Rintels talked on his store system, methods of handling cash and of marking goods. He stimulates clerks by the commission plan, paying the largest commission to the clerk selling the most of his own goods. Window signs on a level with the eye is something he always insists on, believing it to be one of the biggest little things in his business.

William R. Acheson showed by figures the very gratifying profits to be obtained by paying attention to specialties. The four articles he used as an illustration were Foot Powder, Embrocation, Solution Citrate Magnesia and Egg Emulsion Cod Liver Oil.

His method of handling the emulsion is especially unique, when called for either by prescription or on personal recommendation, the mortar is brought before the waiting patron, eggs broken into it, glycerin, oil, etc., added and the whole process completed in full view. The method with the added personal interest developed, creates a demand that is certainly remarkable.

Henry A. Estabrook endeavors to mark his individuality on all goods leaving his store and sells as large sizes as possible. He is very friendly with the physicians and maintains their confidence by keeping his name from all patents, and he prepares only such household remedies as are considered proper by common consent, such as Cough Syrup, Liniment, Cold Cream and Toilet Lotion.

His natural love for dogs and reputation for understanding them has lead him to make a line of dog medicines which enjoys a large sale. More and more has he given personal attention to trusses and hospital supplies, in fact he stated that should he have occasion to establish a new store, these lines would receive a large amount of attention.

Following these speakers, Pres. Nixon exhibited some of his specialties which are of unusual interest, Dental Cream, two kinds of Talcum, Milk Sugar and Olive Oil. Prof. Nixon's reputation as a chemist as well as druggist creates a large demand for preparations bearing his name.

Mr. Estabrook was introduced as the new president of the branch and after a few remarks the meeting was adjourned.

These meetings are of great benefit to retailers and as the remarks are usually extemporaneous the printed reports never convey all the points brought out. Free discussion is always desired and newcomers are always surprised at the freedom with which our successful men impart their secrets.

R. ALBRO NEWTON, Secretary.

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PITTSBURGH BRANCH.

The proceedings of the January meeting of the Pittsburgh Branch were more than ever educational in character; each month much valuable information to those who are present is brought out in the general discussions that take place, only a small part of which can find its way into the published reports as they appear in these columns. For this reason those who attend gain much that is lost to those who merely read the proceedings.

It is a source of continual wonder that so many retail druggists fail to avail themselves of the opportunity the Branch offers to obtain a post-graduate course in pharmacy without price. Such utter indifference to their own interest does not argue well for the druggist in business or his clerks in this vicinity.

Pending the vote on a motion to approve the minutes of the December meeting they were discussed quite fully, during which discussion Dr. Blumenschein said that, to his mind, the non-poisonous character of Creolin-Pearson was not satisfactorily proven, and he is still of opinion that a careful druggist will continue to attach a poison label when dispensing it in less than original package containers. It is not what laboratory notes nor results obtained from physiological experiments show that settles this point, but where we are at under the provisions of the state poison law is the question at issue. No potent drug is poisonous, said Dr. Blumenschein, when properly used—hence the added words to the title on the label "When used in accordance with directions given," would apply equally well in the dispensing of any article of a poisonous character, and the use of the word poison dispensed with entirely.

This contention of Dr. Blumenschein was concurred in by Drs. Koch and Saalbach, and its reasonableness was apparent to all.

As chairman of the Committee on Practice Dr. Blumenschein submitted the accompanying prescription which had been dispensed by a lady graduate of the Pittsburgh College of Pharmacy, located in business in the eastern part of the state, who thought it so unusual in character and had found difficult to dispense in anything like a satisfactory appearing capsule. It would not retain its shape nor color of contents.

℞ Ammon. Iodid. drams 1.
Atropin Sulph. grains 1/10.
Codein Sulph. grains 6.
Creosote (beechwood) drams 2.
Ol. Santali drams 2.
M. Ft. Glutoid caps. No. 24.

The prescription was accompanied by these directions for making Glutoid capsules:

"Take an ordinary gelatine capsule and as soon as it is filled with the medicine, dip a camel's hair brush in melted gelatine or hot water and pass it around the line of union of the two parts until it is securely joined. As soon as this is dry immerse the capsule in pure formalin for three minutes, then wash thoroughly and dispense."

Samples of the capsules as dispensed to the patient, as well as others that Dr. Blumenschein had experimented upon, were exhibited, and none of them bore a very inviting appearance. The point was raised, will a formalin treated capsule ever dissolve in the intestines? The solution of this query was referred to Dr. J. H. Wurdack to be reported upon at a future meeting.

In a communication from Dr. J. H. Beal these words were found: "I shall be gratified if you will present for discussion to the Pittsburgh Branch the subject of an Association Home."

Responding to this request, Dr. J. A. Koch, whose intimate official connection with the A. Ph. A. for many years has put him in position to know its needs, said one of the most urgent of these is a permanent location where the valuable collection of records, books and scientific publications can be kept, where they will not be subject to removal from time to time because of changing officers, a condition which has occasioned the loss of many of its cherished possessions impossible to replace.

On motion of Dr. Koch, supported by Dr. Saalbach, it was unanimously

Resolved, That the Pittsburgh Branch of the American Pharmaceutical Association approves of the idea of an Association Home,

and hereby pledges its moral and material support to that end.

In response to a further request from Dr. Beal, President Campbell urged the members of the Branch to enter the contest for the prizes offered as described in the December issue of the JOURNAL OF THE A. PH. A., viz.: Ten dollars for the most complete and practical Constitution and set of By-Laws for the government of a Local Branch. Five dollars for the second best. Ten dollars for the best set of model programs (seven or more) for the sessions of Local Branches. Five dollars for the second best. Every contestant must be a member of the A. Ph. A., and all papers be in the hands of the JOURNAL editor not later than February 1, 1913.

The election of officers was postponed until the February meeting.

The regular program feature was a lecture by Prof. J. A. Koch on the subject, "Polarimetry," which was handled in his usual thoroughgoing manner, and in which he succeeded in interesting even those of his hearers who know practically nothing of that branch of the science of chemistry.

Owing to the lateness of the hour it became necessary to hold Dr. J. H. Wurdack's lecture on "Analysis of Rocks" in reserve for the next meeting.

B. E. PRITCHARD, Secretary.

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CITY OF WASHINGTON BRANCH.

The January meeting of the City of Washington Branch of the American Pharmaceutical Association was held January 15, 1913, at the National College of Pharmacy. Dr. L. F. Kebler, the president of the Branch, presided.

Communications from the general secretary of the association were read, received, and discussed. Dr. J. H. Beal, the general secretary of the Association, telephoned a few minutes after the meeting was convened that he would be unable to be present as he had anticipated.

The discussions of the evening covered the Harrison bill, now pending before Congress, the standardization of drugs, and the methods employed by unscrupulous manufacturers to evade the pure food and drugs act, with especial reference to male fern, senna, and colocynth; and plans for increasing the attendance at the various meetings were also considered.

The next meeting will be held February 12, when Dr. Hoover will read a paper on senna siftings, and other matters will be taken up.

HENRY B. FLOYD, Secretary.

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CHICAGO BRANCH.

The regular monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held January 16.

President Wells was re-elected as president, W. B. Day, Wm. Gray and A. W. Linton were elected as first, second and third vice-presidents, respectively, and E. N. Gathercoal as secretary-treasurer.

The topic for the evening was "Pharmaceutical Legislation." Mr. H. C. Christensen, member of the Illinois Board of Pharmacy, introduced the subject with a most excellent paper in which he discussed the securing of legislation and the constitutional and legal requirements that must be complied with in the preparation and introduction of the bill and its passage through the various stages of legislation. He pointed out some of the difficulties that are met with and the necessity for continuous effort and vigilance in order to secure the passage of the bill.

He then discussed in detail the recommendations which were made by the Board of Pharmacy to the Governor of Illinois last month, and which were substantially those approved by the Illinois Pharmaceutical Association at its last convention. These recommendations in substance were as follows: (1) The establishment of the graduation prerequisite; (2) the making of more stringent restrictions and penalties regarding the possession, handling and sale of cocaine and its derivatives and allies; (3) state appropriations for the investigation and prosecution of offenders against the law, and for a laboratory where U. S. P. and N. F. preparations may be analyzed, and for more suitable prescription cases and equipment for the proper examination of candidates.

In speaking for the graduation prerequisite, Mr. Christensen pointed out that any law must first bear an important relation to the public before it could receive standing in legislation. Afterwards its relation to those especially interested or affected by the law

may be considered. He said "Opponents of graduation as a prerequisite may argue that 90% of the drug business is purely commercial and 10% professional, and that, therefore, college training is 90% unnecessary. But I reply that in times of sickness and distress, when the life of loved ones may be hanging in the balance, the 10% professional outweighs the 90% commercial."

Messrs. I. M. Light, J. A. Mahaffy, W. B. Day, Wm. Gray, I. A. Becker, C. M. Snow, A. H. Clark, A. W. Linton, James Crowley and others took part in the discussion.

The Branch by resolution indorsed the recommendations offered in Mr. Christensen's paper.

The Branch has extended to Dr. James H. Beal an invitation to deliver an address at the February meeting. His subject is "The Limestone Caverns of the U. S.," and the lecture will be illustrated by stereopticon slides. Druggists generally as well as members of the Branch will be invited.

W. B. DAY, Secretary.

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NEW YORK BRANCH.

A regular meeting of the New York Branch of the American Pharmaceutical Association was held January 13, with President G. C. Diekman in the chair. Following the report of Treasurer Joseph Weinsten, J. L. Lascoff reported briefly as chairman of the committee on professional relations, and C. A. Mayo reported for the committee on membership.

A report for the special committee on the certification of pharmacies was presented by Hugh Craig. In the course of this report, Mr. Craig read a letter from the committee of the Medical Society of the County of New York, having to do with the same matter. This in effect was a statement that the doctors' committee did not see its way clear to meet with the committee of the Branch at the present time. Mr. Craig also referred to the newly-formed American Society of Medical Economics, one of whose purposes was to cooperate with other organizations with a view to the certification of pharmacies.

The report was duly received and at the suggestion of Mr. Craig the committee was discharged. The matter will be taken up by a new committee which was provided for in a motion by Jacob Diner. The matter was discussed somewhat at length by Messrs. Diner and Craig. The former contended that a plan of certification somewhat on the order of that relating to dairies, or the plan of classification adopted by the American Medical Association for medical schools would be more feasible than an attempt to separate pharmacy from side lines by legislative enactment. Mr. Craig defended the committee's action in favoring a plan of legal classification because it was almost essential to the welfare of pharmacy that some plan be determined upon and because neither the county medical society nor the branch was willing to undertake the task of the actual certification.

For the committee on the progress of pharmacy Otto Raubenheimer gave brief abstracts of articles on the following subjects recently appearing in foreign journals: "New Method for the Preparation of Syrup of Calcium Lactophosphate," "The Preparation of Sterilized Solutions and Ampuls," "A New Process for Making Spirit of Camphor," "Collargol and Argentum Colloidal," and "Tooth-Brushes Supplied by Nature." Mr. Raubenheimer also gave an outline of the program of the Eleventh International Pharmaceutical Conference which will be held in a suburb of The Hague, September 17 to 21. This report was briefly commented upon by Messrs. Diekman and Mayo, and received with thanks by the Branch.

Secretary Craig read a communication from Dr. J. H. Beal, general secretary of the A. Ph. A., in which the Branch was asked to discuss the project of a home for the Association.

Mr. Mayo invited those present to attend the meeting of the College of Pharmacy of the City of New York on the evening of the 21st, at which time Prof. A. H. Elliott would speak on the subject of modern store illumination.

President Diekman announced the deaths of Thomas P. Cook and Ewen McIntyre, and appointed as a committee on memorials, Hugh Craig, C. A. Mayo, and Otto Raubenheimer.

Mr. Craig, reporting for the nominating committee, presented the names of the following as candidates for the several elective positions in the Branch: For president, C. O. Bigelow; for vice-president, H. V. Arny; for secretary, Hugh Craig; for treasurer, Joseph Weinstein; for chairmen of committees—education and legislation, W. C. Anderson; progress of pharmacy, G. C. Diekman;

membership, Louis Berger; and professional relations, Peter Diamond.

These nominees were unanimously elected.

Mr. Diner called attention to the action of Sears-Roebuck & Company in ceasing to handle nostrums; and he declared that it was time that pharmacists awoke to a recognition of their responsibility in the same traffic.

Prof. C. P. Wimmer, the speaker of the evening, was introduced by Prof. Arny, and read a very comprehensive and instructive paper on "Chlorophyl," in which he pointed out the formation and function of chlorophyl and its place in phytochemistry and reviewed the work of Willstoetter in connection with the chemistry of this substance. The speaker exhibited a number of solutions showing the variability of chlorophyl, and the products of the action of acids and of alkaloids upon it. He illustrated his remarks further with a diagrammatic schema on the black-board.

The pharmacal phase of the role of chlorophyl was discussed by Messrs. Raubenheimer and Weinstein, and the author of the paper was thanked by the Branch.

HUGH CRAIG, Secretary.

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SAINT LOUIS BRANCH.

A regular meeting of the Saint Louis Branch of the American Pharmaceutical Association was held in the Saint Louis College of Pharmacy on Friday, December 20, and President Ilhardt called the meeting to order at 8:45 p. m.

The minutes of the meeting held on November 29 were approved as read, except the portion which referred to the sample of Compound Solution of Cresol exhibited by Professor Hemm, who stated that it was a general mixture of the samples prepared by the students in the laboratory at the temperature of the water-bath according to the suggestions of La Wall and Cook; and to the significance of certain figures appearing on the Procter prescriptions showed by Doctor Whelpley, which, according to his (Doctor Whelpley's) interpretation, were the prices charged for filling these prescriptions.

The secretary stated that in behalf of the members of the Saint Louis Branch he had sent congratulations and the season's greetings to Mr. George M. Beringer, Camden, New Jersey, president-elect of the Association.

Professor Suppan asked if the committee appointed last spring to arrange for the summer outing meetings which were held, two at the Missouri Botanical Garden (Shaw's Garden), one at the Municipal Water Works at Chain of Rocks, and one at Anheuser-Busch Brewery, had reported, and being answered in the negative, suggested that said committee be asked to report at the next meeting and be discharged.

The chair called upon Mr. A. C. Schulte, who presented a paper entitled "Comments on Editor Beal's Prize Offers" which appeared on page 1442 in the December number of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. Mr. Sennewald made a motion, which prevailed, that Mr. Schulte's paper be received.

Professor Good then made a motion, which was duly seconded and carried, that the secretary call attention to Doctor Beal's Prize Offers on the notices for the next meeting.

Mr. Ilhardt presented a paper, arranged by P. W. Smith and himself, on a Quick Method for Making Solution of Citrate of Magnesium, which he stated was principally excerpts of articles appearing in a number of drug journals and in the literature sent out by some of the pharmaceutical houses.

In this process of manufacture, milk of magnesia is substituted for the magnesium carbonate and the citric acid in the official formula.

Mr. Ilhardt demonstrated the practicability of this process by preparing, in conjunction with his talk, a twelve-ounce bottle of solution of citrate of magnesium, which he stated will retain its freshness for some time if securely corked and kept in a cool place. He emphasized the fact that this is not a cheap method by any means, for the finished product will cost about double that made according to the U. S. P. formula, and further stated that in using this quick and easy process it is necessary to take into consideration the magnesia content of the milk of magnesia as supplied by the various houses for it varies considerably. When preparing the magma in the drug store a difficulty frequently is encountered due to the gelatinization of the magma.

In discussing this paper Professor Hemm gave it as his opinion that the troublesome process of making the magma can be avoided by using fresh light calcined magnesium, suggesting Jenning's product, which will give a homogeneous magma, using water and oxide

of magnesium in the proportion of sixteen to one to make the magma, then add the citric acid, etc.

Professor Suppan read some extracts from contributions which appeared in the National Druggist on the method of making Solution of Citrate of Magnesium, and sustained what Professor Hemm said on the subject.

Mr. Buehler brought up the subject whether the finished product should be colored, and it was the unanimous opinion that it should not be colored as it was not a poison.

Mr. Sennewald moved that Ilhardt-Smith's paper be received and that these members be extended a vote of thanks for their efforts.

Professor Good then made a motion which prevailed, that the article "Protected Medicines and the Pharmacopœia," appearing on page 1327 of December issue of THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION be made the major paper for discussion at the January meeting. The chair appointed J. M. Good, E. A. Sennewald and J. A. Mueller to lead the discussion.

There being no further business, and on motion of Mr. Buehler, the meeting adjourned. J. W. MACKELDEN, Secretary.

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NASHVILLE BRANCH.

At its regular monthly meeting in Furman Hall, Vanderbilt University, the Nashville Branch of the American Pharmaceutical Association began active work preparatory to the entertainment of the parent association, which will meet in Nashville in the latter part of August. Dr. E. A. Ruddiman, chairman of the general committee, announced the appointment of the chairmen of special committees as follows: Membership, Ira B. Clark; finance, M. E. Hutton; entertainment, Wm. R. White; hotels, J. B. Sand; reception, C. C. Young. These chairmen will constitute the executive committee, of which Dr. J. O. Burge is chairman.

Every member of the organization in Tennessee is appointed a member of the general committee, and urged to aid the chairman in the performance of his duties. The membership committee will launch an active campaign of the entire South for new members of the organization.

Chairman White, of the entertainment committee, has begun arrangements for the entertainment of the visitors to the convention. Besides the local features, efforts will be made to secure special rates to Mammoth Cave and Lookout Mountain for those in attendance. Efforts are being made to secure attractive rates to the convention from all sections of the country so that announcement of the rates may be made at the next meeting of the various state organizations. Mr. Hutton has reported that the financial strength of the Nashville Branch will assure adequate funds for the requirements of the meeting.

The Nashville Branch has received many compliments locally for securing the convention of the American Pharmaceutical Association for Nashville. It has created a feeling of fellowship among the druggists of the city, and has helped bring the pharmacists and physicians of the city in closer contact and unison of purpose by joint discussions of the National Formulary and Pharmacopœia. The members have been greatly benefited by the discussion of up-to-date problems bearing on the profession.

The next meeting of the Branch will be held in Furman Hall February 13, and all druggists of Nashville are cordially invited to attend. Matters of general interest will be discussed. W. R. WHITE, Secretary.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.

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THOMAS PENROSE COOK.

Born March 26, 1849, died January 7, 1913, a member of the American Pharmaceutical Association for 35 years.

By THOMAS F. MAIN, Honorary President of the A. Ph. A.

Thomas Penrose Cook was born in Philadelphia and was left an orphan at the age of six years. He was brought up by his maternal grandfather, Thomas N. Penrose, an apothecary of that city, in whose store he subsequently became an apprentice and

clerk. He received his education in the public schools of Philadelphia, his time when out of school being spent in his grandfather's drug store, where he early learned the rudiments of the drug business, which in those days consisted largely in the handling of vegetable drugs and preparing them by means of the pestle and mortar and the hand drug mill for their ultimate uses, his practical work in the drug store being supplemented by a course of instruction at the Philadelphia College of Pharmacy.

At the end of his apprenticeship and having

THOMAS PENROSE COOK.

served his grandfather for a time as clerk, he secured a position with J. William Jones & Co., dealers in heavy chemicals and dye stuffs, where he was brought in contact with buyers of drugs and chemicals for use in the arts, and later, when in the employ of John C. Hurtt of Philadelphia, he learned the details of the jobbing drug business and demonstrated his ability as a salesman.

In 1871 he accepted a position with Powers & Weightman, considered at that time the leading manufacturers of fine chemicals in the United States, where he was put in charge of a new department formed to exhibit goods of the company's manufacture at trade meetings of manufacturers, and conventions of medical and pharmaceutical associations. He showed marked ability in this line of work, his exhibits being tastefully designed to attract and hold attention, while his intimate knowledge of the goods shown and pleasing manner of presenting their merits, made friends for himself and the firm he represented.

Mr. Cook had charge of the Powers & Weightman display at the Philadelphia Exhibition of 1876, the first World's Fair held in the United States, where he came in contact with manufacturers of, and dealers in, chemicals from other countries, and formed acquaintances with leading men in the chemical trade from all parts of the world.

For 18 years Mr. Cook continued this work which took him into all sections of the country and gave him a favorable acquaintance, which in many cases ripened into warm friendship, with the prominent physicians, pharmacists, chemists and manufacturers using chemicals throughout the United States. This acquaintance was invaluable to Mr. Cook in some special work he did in 1889 for Eli Lilly & Co., then rapidly forging to the front as manufacturers of fine pharmaceuticals, and later for E. Merck of Darmstadt, who was about this time establishing a branch house in the United States.

Mr. Cook's experience up to 1893 seems to have been a preparation for what may be termed the business of his life, as in this year he became general manager, and later vice president, of the New York Quinine & Chemical Company, which specialized in the manufacture of a limited line of fine medicinal chemicals. Mr. Cook's intimate and favorable acquaintance with the leading users, dispensers, and prescribers of these goods, with his great ability in selecting the best methods of presenting them to their attention, scored an immediate success for his company and the N. Y. Q. chemicals became known and favored throughout the length and breadth of the land.

It was at this time that Mr. Cook, as the representative of his company, became a steady worker in the National Wholesale Druggists' Association; he regularly attended its meetings and was always willing to place at the disposal of its committees or members the knowledge gained from his wide experience. He was for a number of years

either a member or chairman of its Committee on Rates and Routes, while his systematic methods and social qualities made him a highly esteemed member of the Committee on Arrangements and Entertainment, the confidence of the trade in him and in his executive ability being such, that on two occasions when attendance of members at meetings of the Association was expected to be specially large, the entire arrangements for entertaining were placed in his hands, with such ample funds, that after providing what the members considered lavish entertainment, he returned a large percentage of the funds entrusted to him to the original subscribers.

For 20 years Mr. Cook was a member of the Drug Section of the New York Board of Trade and Transportation, serving it in all capacities where his intimate knowledge of the drug trade and the men engaged in it would prove useful. He was Chairman of the Section in 1904, was Chairman of its Legislative Committee for many years, and for a number of years preceding his death was one of the managing directors of the Board.

Soon after taking up his residence in the city he became a member of the College of Pharmacy of the City of New York, and in 1903 was elected to its Board of Trustees, and in 1910 to the Vice Presidency. His work for this institution was marked by the same conscientious care given to his personal business and the vacancy left in the ranks of the working officers of the College by his decease will be most difficult to fill.

In 1878 he joined the American Pharmaceutical Association and thereafter gave it constant and earnest support, recognizing it as the one Association in which all branches of the drug trade could unite and work for the common good. Unless business of importance prevented he was a regular attendant at its meetings and for many years was a prominent factor in arranging for the exhibitions of drugs, chemicals, pharmaceuticals and apparatus which were such attractive features at the annual gatherings. He gave freely of his time and experience to aid in carrying on the work of the Association.

Mr. Cook had an easy genial manner that was attractive to all those with whom he came in contact and this first feeling of good will grew into confidence upon further acquaintance, while his readiness to "lend a hand" and impart the results of his wide and varied knowledge of trade matters to all who sought it, gained for him the gratitude and love of those who benefited by his advice.

Mr. Cook never sought leadership in any society to which he belonged, but was content to serve—so that the honors which came to him were in all cases a recognition of work well done, and to give him an opportunity for further usefulness.

In one sense the success of the business in which he was the head executive may be considered a monument to his memory, but his real monument is in the hearts of his hosts of friends in the drug and allied trades, who had learned to love him, and by whom he will ever be kindly remembered, while those who were intimately associated with him in the various societies which he served so long and faithfully, will always consider it a privilege that they enjoyed his companionship and will have the example of his constant devotion to duty ever before them.

Mr. Cook is survived by his widow and two children, Sarah E. and William G. Cook, to whom the sympathy of the entire trade is extended.

By J. M. PETERS, Assistant Manager of the National Lead Company, New York.

Mr. Main tells me you are preparing a memorial to our late friend, Thomas P. Cook, for the American Pharmaceutical Association, and I am sure you will not deem it amiss to incorporate with it some record of his service to other organizations connected with the Drug Trade. His life, from early boyhood, had been devoted to some branch of the drug business, and he had affiliated with many of its national, state and local organizations.

He recognized fully the obligations imposed by membership in such associations, and there is none to which he belonged whose members cannot testify to the loyalty, the intelligence, and the zeal, with which he labored for its welfare. But he went beyond this, and voluntarily assumed duties and responsibilities in the discharge of which he contributed largely to the success of organizations in whose councils he was simply a guest, whose presence and aid were always gladly welcomed and highly valued.

In the National Wholesale Druggists' Association of which he was an associate member for twenty years or more, he was an

arduous and unselfish worker and his contribution to the success of its conventions did much toward increasing the strength and adding to the efficiency of the organization.

In the New York Board of Trade and Transportation of which he became a member soon after taking up his residence in this city, he worked continuously and with great effectiveness not only in the various official positions he held, but equally on its committees or in the ranks of its members. His work on the Legislative Committee of the Drug Trade Section, of which he had been for a number of years the Chairman, has redounded to the benefit of every branch of the Drug Trade in the State of New York, and has been reflected in the legislation of other states.

Of his activity in retail organizations I have less intimate personal knowledge, but I know that it imposed upon him much arduous labor which was conscientiously performed and was fittingly recognized by his associates.

I had known "Tom" Cook for about thirty years and had known him intimately, but that period has not been long enough, nor the intimacy sufficiently close, to disclose to me an unkind thought, or to permit me to hear an uncharitable word concerning any human being whom he knew. This does not imply that he failed to discriminate between the good and the bad in men, or to condemn what he believed to be wrong. But his criticisms were never actuated by "envy, hatred or malice" and they were always marked by a charitableness which few of us are fortunate enough to be able always to feel, or to breathe into our dissensions.

His genial personality, his kindly disposition and the helpfulness he was always ready to extend, will make his memory a lasting pleasure to everyone who was fortunate enough to have had association with him.

By R. P. ROWE, Vice President of the National Lead Co., New York.

It was my privilege to know Mr. Cook for a great many years, especially his connection with the Drug and Chemical Club. Mr. Cook joined this club in 1895. He was elected to its Board of Governors in that year. He served as its vice president in 1895 and was elected president in 1896-1897. I served as a member of the Board with Mr. Cook and, in fact, succeeded him as president in 1898, and I have often said the Drug and Chemical Club owes more to Thomas P. Cook than to anyone else. In our early struggles, where we were doing the best we could, he was a power of strength in the organization, unsparing, unselfish and inspiring us all to greater work, which ultimately put the Drug and Chemical Club in its present most prosperous condition. His death was a distinct loss to that organization, as it was to every institution and business with which he was connected.

Mr. Cook used to take his luncheon at a table with those particularly connected with the drug and collateral trades and I know we all feel there is one empty chair that no one in that club can fill as it was filled by the man we all loved, esteemed and revered, Thomas P. Cook.

By H. T. JARRETT, Manager New York Branch Mallinckrodt Chemical Works.

I had a long acquaintance and many experiences with Mr. Thomas P. Cook, and would say that I knew him for about forty years, but first came in close touch with him in 1875 in Kansas City. He was putting up an exhibit for Messrs. Powers & Weightman and I was erecting one for Messrs. Charles T. White & Co. I, like nearly everyone else, was short of tools or something, and it became a standing remark "Ask Tom Cook," and Tom Cook was always ready to lend his tools and even to lend himself to assist you in getting into shape. This spirit and his unfailing efforts to please, endeared him to all who came in contact with him, and he never changed.

By HENRY G. LOVIS, Chairman Drug Trade Section, New York Board of Trade and Transportation.

In reviewing the work done for the Drug Trade Section of the New York Board of Trade and Transportation by our late associate, Mr. Thomas Penrose Cook, though serving on various committees during the 20 years of his connection with the Section, as Chairman of the Section during the year 1904, and as Director in the General Board for many years, it is particularly his untiring and effective work on the Legislative Committee that has been of such vast importance to the members of the Drug Trade

not alone in New York City, but in the State and Nation.

As Chairman of that Committee for many years, at any or every sacrifice of personal convenience or engagement, he was ever ready for personal appearance at legislative hearings, whether in Albany, Washington, New York City or elsewhere, giving the best of his wise counsel and rare good judgment. Few, if any, legislative matters affecting the drug business during these 20 years failed to enlist his active attention, and the Drug Trade is deeply indebted to Thomas Penrose Cook for the indefatigable efforts which he constantly exercised for the protection and betterment of its interests in those ways.

By ROMAINE PIERSON, Publisher of The Practical Druggist, New York.

Those of us who were permitted to know Tom Cook loved and admired him for what he was, "our balance wheel." It was a motto in The Practical Druggist office "When in doubt consult Tom Cook," and I have often told him he ought to be put on our payroll at a big salary just as consulting engineer, for he could see so far into the future and the other man's position, thus keeping the editorial ship off the hidden rocks.

He would always go out of his way to help every publisher of a drug paper to fill his pages with crisp news items and he prepared new, "out of the beaten path," copy for the New York Quinine and Chemical Works that brought him fame and the company revenue.

He always, on every occasion, spoke in praiseworthy terms of every one, always championed the absent who were under fire, and for all these beautiful traits and many others, we, the publishers of drug journals, love Tom Cook.

By EDGAR D. TAYLOR, President Powers-Taylor Drug Co., Richmond, Va.

In the death of Mr. Thomas P. Cook the National Wholesale Druggists' Association has lost a most valuable member and one who was continuously active and highly useful. He was attractive personally and gentle in his manners and drew men to him and held them with a devotion that ripened into true friendship.

Any duties assigned him were undertaken without regard to the work and worry they would bring, and his service was characterized by earnestness, unselfishness and fidelity, for the sake of others. This high purpose was his chief aim and seemed to control his useful life. His superior judgment made him necessary on many committees, and in this capacity, as well as others, he will be sadly missed by his associates.

We accord to him a high place in our esteem and deeply mourn his departure.

By CLARENCE G. STONE, New York Branch of the Lambert Pharmacal Co.

The opportunity to contribute something to the JOURNAL regarding one of the various activities in which Mr. T. P. Cook was engaged, furnishes the writer with no little comfort, as the loss of our dear friend has made a vacancy to which it is hard to become accustomed, and it is a relief to say something about him.

In connection with the Committee on Arrangements and Entertainment of the National Wholesale Druggists' Association it has been possible to see the splendid unselfish character which was shown in Mr. Cook's life. My own acquaintance with Mr. Cook dates back to 1882, thirty-one years ago. For the past twenty years we have been associated together on the N. W. D. A. Committee and during that time there were constant evidences of the whole-souled interest which Mr. Cook had in things that would make others comfortable and happy.

No amount of personal inconvenience or loss could deter him from being ever ready to go anywhere or do anything to complete his share of the work. His sense of justice and fairness always stood out boldly, and no opportunity to profit by his position would change his attitude on questions which would arise, his sole desire being to receive his profit in the satisfaction he got from making it easy for others to enjoy themselves.

Every member of the Wholesale Drug trade of the United States has somewhere in his memory a kind thing Mr. Cook did for him, not once but many times, something which made his pathway more pleasant. This vast acquaintance and knowledge of individuals, together with the wonderfully seasoned experience which all these years had given him, made it possible for him to comprehend quickly the feasibility of plans for his committee, and the best means of getting them executed.

The N. W. D. A. meetings each year have

had some vacant chairs which sadly reminded us of the dear friends who have filled them in the past, and one this year which will be noticeable and held in affectionate memory, will be that of Thomas Penrose Cook.

The greatest monument which one can have is that built of the fond esteem of his friends, and of this material, the one erected by the N. W. D. A. will include a token from every member.

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EWEN McINTYRE.

By J. W. ENGLAND.

More than three-fourths of a century ago, a country lad, the third of six brothers, with an education primarily acquired in the little red schoolhouse, with an added two and one-half years at what was then known in New York State as the Academy, now obsolete, to secure that education walking nearly three miles morning and evening, and realizing the need of a choice of life work, secured a position in a drug store in New York City. A few days ago this same lad, Ewen McIntyre, after a life of years of labor and honor and the love of all who knew him, passed into the Great Beyond.

Ewen McIntyre died of pneumonia at his home in New York on January 8, 1913, at the age of eighty-eight years. He was born at Johnstown, N. Y., where he lived until he was seventeen years old, when he came to New York and entered the drug store of Dr. George D. Coggeshall, at Rose and Pearl streets, remaining for seven years, during which time he also attended the New York College of Pharmacy, from which he was graduated in 1847. He was the oldest living graduate of that institution. In 1849 he opened a drug store at Broadway and Eighteenth street, which he occupied until his retirement in 1896.

Mr. McIntyre served as a trustee of the New York College of Pharmacy from 1873 to 1874, when he was elected vice president, which office he held from 1875 to 1876, when he was elected president and served continuously from 1877 to 1889. In 1890 he was again elected a member of the board of trustees and served as such until 1892. From 1904 to the time of his death he was annually elected honorary president.

He was an honorary president of the American Pharmaceutical Association, in 1910-11, as well as a life member of the St. Andrew's Society and the American Society of Natural History. He was made a Master in Pharmacy (Ph. M.), honoris causa, by the Philadelphia College of Pharmacy in 1912.

Mr. McIntyre had a most successful life, using the term success in its true sense, that is, not in the accumulation of dollars and cents, but in individual growth and achievement. His years were prolonged beyond the usual "three score and ten," but he was always busy, he was always progressive, and he was always full of youthful enthusiasm and sunshine, and these he passed on to his fellowmen.

Eighty-eight years of life and his soul never grew stale! Like other men, he had troubles of his own, but with a rare and beautiful optimism, his genial, kindly spirit met them with a smiling face and undaunted courage, and he conquered; and wherever trouble existed, among his fellowmen, and differences needed adjustment, he was often the factor that restored harmony and good feeling.

Like Leigh Hunt's "Abou Ben Adhem," he loved his fellowmen.

At the Boston (1911) meeting of the American Pharmaceutical Association, before the Section on Historical Pharmacy, he presented a most interesting paper on "Some Pharmacists in New York City Three-fourths of a Century Ago," the concluding paragraph of which reads:

"Now after all these years the lad is still spared, greatly honored by the A. Ph. A. at its last gathering by its action so entirely unlooked for and unexpected (i. e., election as the Honorary President of the Association, J. W. E.). He wonders if it be possible that in the next seventy-five years the marvelous progress that has taken place in his day will be repeated. He remembers that he has counted thirty or forty wagons and teams a day, known as 'prairie schooners,' loaded with a few household effects and sturdy New England pioneers, on their way to settle the West; now the great states of Ohio, Indiana, Illinois and Michigan. He has seen building the second traffic railroad in this country, from Schenectady to Utica, passing near his father's door. In those days there were no matches, no photographing, telegraph, electricity and its marvelous adap-

tation in the service of our everyday life. There was no A. Ph. A. even. Shall this great progress go on? And why not? For even now we see machines and men flying in the air. So it behooves every member of the Association to stand with one purpose, one aim, to raise the standing of our profession and do all that we can and should do in relieving sickness, suffering and pain, so largely a part of man's inheritance."

May the life of this grand old man in American Pharmacy be an inspiration to all of us!

The funeral services were held in the Fifth Avenue Presbyterian Church of which Mr. McIntyre had been a member for sixty-five years, and was attended by the faculty and board of trustees of the College of Pharmacy of the City of New York, and many prominent representatives of the pharmaceutical world. His wife, four sons and five daughters survive him.

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EDWIN O. GALE.

By J. W. ENGLAND.

Edwin Oscar Gale, founder of the firm of Gale & Blocki and the oldest citizen of Chicago, died on January 23, 1913, at 347 Lake street, Oak Park, at the age of 81. He had been in failing health for several years.

Mr. Gale was born in New York on May 7, 1832. In his "Reminiscences of Early Chicago," he tells of his trip through the Erie canal with his father and mother, brother and two sisters and the long journey to the new west. He tells of the hats his mother brought with her and the opening of the "New York Millinery Store." He tells of the wonder of the Indians at the "bird in the box," as they christened the piano his mother played in their first house at Randolph street and Fifth avenue. And he tells with pride of his defeat of "Monkey" Beaubien, a schoolmate, with whom after school he swam races in the Chicago river.

Shortly after the predecessor of the present big drug house was established, in 1847, he entered it, reorganizing it later. In this work he continued until fifteen years ago, outliving the active service of his partner, William F. Blocki, who, though retired, survives him.

In the fire of 1871, his drug store was destroyed. When Mr. Gale went to look at the ruins he found a single case of hair-brushes uninjured. These he sold promptly, sent his partner East for more stock, and resumed business. The firm is probably the oldest retail concern in Chicago.

Since Mr. Gale's retirement he has written his reminiscences and a little book of miscellaneous and occasional poems, "Falling Leaves." He was a charter member of the "Borrowed Time Club," the unique Oak Park organization of old people who have passed their three-score years and ten.

He was a life member of the American Pharmaceutical Association, having joined in 1857.

In 1856 he married Miss Julia Hart of Belvidere, now, at 79, frail, but in reasonably good health. They removed to Oak Park, then a community of twenty families, in 1866, and enjoyed transportation service of one train a day.

In addition to Mrs. Gale there are five of the seven sons surviving. These are Walter H., E. Vincent, Abram, G. Whittier, and Oliver Marble. There are eleven grandchildren.

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THOMAS WHITFIELD.

Thomas Whitfield died in Chicago on January 23, 1913. He was the oldest alumnus of the Chicago College of Pharmacy (now University of Illinois School of Pharmacy), having graduated with the class of 1860.

Mr. Whitfield served in the Civil War as a member of Taylor's Battery B, First Illinois Artillery.

He became a member of the American Pharmaceutical Association in 1865.

The funeral services were held on January 25, 1913, at Rosehill Chapel. J. W. E.

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LOUIS LEHMAN.

Louis Lehman, of 1038 Wilson Avenue, Chicago, died at the Lakeview Hospital, Chicago, on January 7, 1913. He was graduated from the Chicago College of Pharmacy in 1885, and took a deep interest in organization affairs. He was a member of the Chicago Retail Druggists' Association, and a member of the Illinois Pharmaceutical Association. He joined the American Pharmaceutical Association in 1905. He was a close friend of the late Albert E. Ebert and C. S. N. Hallberg. J. W. E.

Council Business

COUNCIL LETTER No. 8.

PHILADELPHIA, January 14, 1913.

To the Members of the Council:

Motions No. 6 (*Postponement of Date of Meeting of Legislative Conference*), *No.* 7 (*Appropriation for Expenses of National Syllabus Committee*), and *No.* 11 (*Appropriation to Committee on Pharmacopoeias and Formularies*), have received a majority of affirmative votes.

In changing the by-laws of the Association to make the fiscal year the same as the calendar year, the General Rules of Finance were not changed to correspond. Hence, these, as they stand, require that the books of the Treasurer and Secretary be sent to the Auditing Committee in July of each year.

The following motion is therefore offered:

Motion No. 12 (*Change of Rule of Finance for Auditing Books*). Moved by J. H. Beal, seconded by J. W. England, that the dates provided in the General Rules of Finance (Rule Tenth) for balancing and auditing the books of the General Secretary and Treasurer, be changed to correspond to the changes made in the by-laws at the 59th and 60th annual conventions.

Motion No. 13 (*Prices of Bound Volumes of Proceedings*). Moved by J. H. Beal, seconded by F. M. Apple, that the General Secretary, Treasurer, and Secretary of the Council be made a special committee to readjust the prices for the sale of bound volumes of the Proceedings, and that this committee be also authorized to name a special price to Libraries of Colleges of Pharmacy and similar institutions.

Motion No. 14 (*Appropriation for Delegates to National Legislative Conference*). Moved by J. H. Beal, seconded by J. A. Koch, that the sum of $100, or so much thereof as is necessary, be appropriated to cover the expense of the delegates to the National Legislative Conference held at Washington, D. C., January 15, 1913.

This appropriation has been approved by the Committee on Finance.

Motion No. 15 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 40. Thos. J. Janda, 1017 East Ohio St., N. S., Pittsburgh, Pa., rec. by B. E. Pritchard and J. A. Koch.

No. 41. George Judisch, Ames, Iowa, rec. by Wilber J. Teeters and Zada M. Cooper.

No. 42. William C. Bartholomew, 3218 N. Capitol Ave., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 43. Fred Dahl, 148 Parker St., Newark, N. J., rec. by Birdsey L. Maltbie and J. H. Beal.

No. 44. Theodore Robert Schwerdtmann, West End Hotel, St. Louis, Mo., rec. by Carl T. Buehler and J. W. Mackelden.

No. 45. Rodney Beecher Harvey, Y. M. C. A., cor. New York and Illinois Sts., Indianapolis, Ind., rec. by F. A. Miller and Frank R. Eldred.

No. 46. J. Earle Harper, Clearwater, Nebraska, rec. by Herbert Lock and Frank Koss.

No. 47. Clarence Ashton Leavitt, 511 Grand St., Pullman, Washington, rec. by Geo. H. Watt and J. H. Beal.

No. 48. John Anthony Mueller, 2200 S. Broadway, St. Louis, Mo., rec. by A. C. Shutte and Carl T. Buehler.

No. 49. Petko L. Ivanoff, 32 Adams Ave., Detroit, Mich., rec. by Leonard A. Seltzer and A. A. Wheeler.

No. 50. Almon E. Moyer, 32 Adams Ave., Detroit, Mich., rec. by Leonard A. Seltzer and A. Alton Wheeler.

No. 51. Archibald L. Lederle, 32 Adams Ave., Detroit, Mich., rec. by Leonard A. Seltzer and A. Alton Wheeler.

No. 52. Ray A. Hugill, 32 Adams Ave. W., Detroit, Mich., rec. by Leonard A. Seltzer and A. Alton Wheeler.

No. 53. Forest Jackson Goodrich, 6307 Brooklyn Ave., Seattle, Wash., rec. by Chas. W. Johnson and L. S. Gilbertson.

No. 54. William Frederick Kahre, 11 South 4th St., St. Louis, Mo., rec. by J. V. Mackelden and W. H. Lamont.

No. 55. Earl Utterback, 532 S. Van Buren St., Iowa City, Ia., rec. by R. A. Kuener and Wilber J. Teeters.

No. 56. Carl B. Burnside, 724 E. Market St., Iowa City, Iowa, rec. by R. A. Kuener and Zada M. Cooper.

No. 57. Joseph J. Von Koss, 32 Adams Ave. W., Detroit, Mich., rec. by L. A. Seltzer and H. M. Whelpley.

No. 58. C. G. Euler, 18-20 Platt St., New York, N. Y., rec. by Otto Raubenheimer and Romaine Pierson.

No. 59. John Stanislaus Michalski, 1524 Rhine St. N. S., Pittsburgh, Pa., rec. by J. A. Koch and Fred J. Blumenschein.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER No. 9.

PHILADELPHIA, January 15, 1913.

To the Members of the Council:

The following communication has been received from President W. B. Day:

"To the Members of the Council:

At the Denver meeting our Committee on Time and Place of the next convention decided upon the third week in August, which would be the week beginning August 18th, as the most suitable date for our meeting. Subsequently, this was changed by action of the Council to August 25th, but before the action of the Council had been published the Executive Committee of the N. A. R. D. met in Chicago and fixed the date of their coming meeting for the week beginning August 25th. The N. A. R. D. meeting is to be held in Cincinnati. I am informed that the N. A. R. D. Committee alone has the power to fix the date of the annual convention and that they selected the time with special reference to our meeting as announced in our journal, so as to avoid conflict and have their meeting the week following ours with a view of making it as convenient as possible for those interested in both associations to attend both meetings.

Under these circumstances, I believe that we ought to revert to the date originally proposed for our Convention, that is Monday, August 18th, unless there is some very good reason to the contrary, and I offer a motion to that effect. Secretary Beal seconds this motion.

I think it is of much importance that this matter should be settled as early as possible, for obvious reasons.

Very truly yours,
W. B. DAY.

Chicago, January 14, 1913."

The above will be regarded as *Motion No.* 16 (*Reconsideration of Motion No.* 3 (*Time of* 1913 *Anual Meeting*) *and change to the week beginning August* 18, 1913). Do you approve of above motion?

J. W. ENGLAND,
Secretary of the Council.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

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PLACAK, HARRY,
From 3625 Woodbridge Ave.
To 3039 Woodland Ave., Cleveland, O.

O'NEIL, HENRY M.,
From 888 Columbus Ave.
To 314 W. 14th St., New York City.

SALA, ALBERT F.,
From 205 W. 12th St.
To 114 W. Washington St., Winchester, Ind.

THOMAS, GLENN D.,
From Villisca, Ia.
To Box 84, Stewartville, Minn.

WHITE, J. LEYDEN,
From 1700 14th St. N. W.,
To 617 Southern Bldg., Washington, D. C.

LAMONT, W. H.,
From care Eli Lilly & Co., St. Louis, Mo...
To 908 Central St., Kansas City, Mo.

CREIGHTON, MISS MARY L.,
From Scio, O.
To 2246 Fourth St., San Diego, Cal.

MILLER, WM. L.,
From Box 343, Detroit, Mich.
To Box 387, Portland, Oregon.

UNITED STATES PUBLIC HEALTH SERVICE.

(Recent changes in pharmacists' assignments, etc.)

Holsendorf, B. E., Pharmacist. Granted 30 days' leave of absence from Feb. 21, 1913. Jan. 8, 1913.

Holsendorf, B. E., Pharmacist. Leave of absence for 30 days' from Feb. 21, 1913,

amended to read "30 days' leave of absence from Feb. 9, 1913." Jan. 24, 1913.

Berkowitz, M. E., Pharmacist. Relieved from duty at the Marine Hospital, Boston, Mass., and directed to proceed to Philadelphia, Pa., and report to Surgeon W. G. Stimpson for duty. Jan. 23, 1913.

Riley, John A., Pharmacist. Directed to proceed to Boston, Mass., and report to the medical officer in command of the Marine Hospital for duty and assignment to quarters. Jan. 23, 1913.

APPOINTMENT.

John A. Riley appointed Pharmacist of the Third Class. Jan. 15, 1913.

RESIGNATION.

Pharmacist John L. Osborne resigned to take effect Dec. 19, 1912. Dec. 27, 1912.

BOARD CONVENED.

Board of medical officers convened to meet at the call of the chairman for the purpose of preparing a revision of the regulations for the government of the United States Public Health Service. Detail for the board: Assistant Surgeon General A. H. Glennan, Chairman, Assistant Surgeon General W. C. Rucker; Assistant Surgeon General J. W. Trask; Surgeon John F. Anderson; Passed Assistant Surgeon B. S. Warren, Recorder.

SALESMANSHIP AND THE DRUG CLERK.

Salesmanship, as applied to the drug clerk, may be said to consist of three things:

First—Know all about the goods you are expected to sell.

Second—Take a sincere interest in the customer's wants.

Third—Try to make the same profit for your employer as you would for yourself.

How is the clerk to learn about the goods? Ask anybody likely to have the information. Talk to the salesman when he comes around. If he cannot give you some good selling points he is not on to his job. Learn all you can from your employer. He will think more of you if he sees you are anxious to increase your knowledge of his stock. Learn all you can about anything you have to sell. It makes a tremendous difference if you are armed with real inside information about the articles you are trying to sell. Study the goods yourself. Often you will be able to pick up a good point of your own.

Take an interest in your customer's wants. Put yourself in his place. You know how disagreeable it is to meet with a gruff or indifferent attendant at a theater, store, restaurant, railway station or elsewhere. Avoid in yourself what you dislike in others. You need not fawn, you need not coax, cozen or wheedle. Simply treat the customer as you would like to be treated if you were to exchange places.—*Voice of the Retail Druggist.*

THE TOP OF THE SALARY LIST.

When you once get inside of a drug store keep your mouth shut and your head and hands busy. Don't talk—work! There is nothing romantic or exciting about success. The stories you read in the Golden Argosy about the proprietor of the store picking a newsboy out of the gutter and marrying him to his daughter are all buncomb pure and simple. Success is just like walking. It's simply putting one foot ahead of another and repeating the same process over and over. This process will take a man from coast to coast in time and this same process will land a man success if he hangs on. The faster he does it the quicker success comes.

One raise at a time will put you at the top of the salary list if you will keep on plugging. You have got to keep your eyes on the job ahead of you, though. The very moment you have mastered the work assigned to you begin to look for more work. Don't imagine for a moment that the man you are working for don't know who is doing the work around your store. Don't dream for a minute that you are not being watched every minute. Keep right at it and the whirligig of time will bring you your reward.

When you see a way to save the boss a dollar save it and say nothing. When you see a way to make the boss a dollar, make it and say nothing. When you have done this half a dozen times the boss will begin to sit up and take notice.—*Roe Fulkerson, in Southern Pharmaceutical Journal.*